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## ORIGINAL COMMUNICATIONS.

### Article I.—*Observations on Neuralgia, with Cases, by* J. Trenor, M. D., *Dentist, of New York.*

Under this head, I wish to be considered as treating of the disease commonly known under the title of tic douloureux; and designated by writers, trismus dolorificus, autalgia dolorosa, dolor crucians faciei, with a variety of other appellations, as unnecessary, because unsatisfactory, as they are numerous. To Professor Chaussier I am indebted for the generic name I have employed, pointing out its locality, by the addition of *faciei*, *digiti*, *brachii*, according as the face, finger, &c. may be the seat of the disease. There is not, probably, in the whole catalogue of complaints, one more painful or distressing; and I regret to be obliged to add, one less, or indeed so little understood by the profession. That this is the fact, an examination of the different essays on this affection, with which we have been favoured, will clearly evince. From them it will appear, that there is scarcely an article of any decided power in the materia medica, which has not been prescribed in this complaint; not with that certainty, which a correct knowledge of the nature of the disease and of the properties of the article employed, would justify, but with a hope, that in a course of experiments, something successful might be found. As might be expected, under such circumstances, we perceive the

views of the writers, as to the nature of this affection, to be almost as diversified as are the articles to which they have had recourse for its cure. Some have attributed it to a cancerous acrimony; others to a deranged state of the stomach; a third believes its origin to be in the brain, and that the local pain merely stands in the relation of an effect; but from the cases which have come under my notice, I believe it to be, correctly speaking, a local disease; more under the control of local, than of general remedies. There can be no doubt, but that its rise, progress and cure, depend very often and very materially on the state of the general health; but this is saying no more than what may be said, with equal justice, of almost every other local affection. That it has been cured by general remedies is most certain; that these have frequently and totally failed, is equally so; but that this is a very roundabout way of coming to the point, I must maintain; and that one, more successful, and by which the general health is in no manner interfered with or deranged, is within our power, I hope to be able, hereafter, to establish.

On the history of this complaint I shall be somewhat brief. Although we cannot doubt it has existed in all ages and in all countries, yet the researches of the most industrious, have not been able to discover that it has been described by any of the Greek writers on medicine. It is said, however, to have been noticed by the Arabians. RHAZIS, we are informed, one of the most celebrated physicians of that nation, has transmitted to us a description of this painful complaint. As the chief object of these remarks, however, is to place before the medical community, what I believe to be, so far as my reading, and intercourse with professional men will allow me to judge, a new view of this complaint, it will scarcely be deemed of sufficient importance to enter at large upon its history. But I shall take occasion briefly to notice and discuss the several opinions which have been, at different times, held as to its nature.

Of its character. This is variously given by writers. I do not think we can be more accurate than by saying, it is characterized by painful spasmodic affections of the nerves, following a course from their expansions to a principal trunk; irregular in its attacks, short in duration, and more or less frequent in repetition.

Of its description, I shall be nearly as concise as of its history;

it is the less called for, as the cases I shall detail, will be found to contain what is most necessary or interesting in this particular. I will here merely advert to a circumstance, trivial in itself, but which, I suspect, has been erroneously considered a peculiar and singular attendant on this disease. It is this, that while the neighbourhood of the deranged part (seldom the spot itself) will bear, without awakening a paroxysm of pain, pretty rough pressure and examination with the hand, yet a very slight touch on the skin will bring on the convulsive twitches in their most acute degree. On further investigation, however, this does not appear altogether so unnatural, as we would, at first, suppose. If, in a person free from this, as well as every other complaint, a feather be gently drawn across the upper lip, a most unpleasant sensation is excited; whereas, the pressure of the finger, or any similar application, causes no manner of uneasiness. It is probable, that the delicate sensibility of the nervous extremities on the skin, is, in a great measure, blunted by the latter process, but by the former, materially augmented, and that under disease it must be so, to a still higher degree.

To neuralgia, elsewhere situated than on the face, I do not now further allude, than to say, that it differs from the latter only as to locality.

That part of the subject, which next claims our attention, though interesting, is certainly the most intricate, viz. the causes of neuralgia. These, authors pretty generally declare, to be unknown, except in those instances in which local injuries, as severe blows on the face or head, or other external violence, could be assigned. In several individuals, it was evident that a general delicacy of frame and nervous irritable state of the system, had for some time existed, previous to the manifestation of this local affection. Such a frame of constitution I look upon as particularly predisposed to this, as it is to many other troublesome complaints. But in many cases, no deviation from perfect health was obvious, for any length of time, anterior to the development of this disease. Under the head of exciting causes, we may place mechanical injuries, as already alluded to; and in addition I can state, that on strict enquiry, it was almost always discovered, that my patients had been exposed, immediately before being troubled with this painful disorder, to one or more of the usual causes of catarrhal

complaints, particularly sitting in the draught of a window of an evening when there had been a sudden reduction of atmospheric temperature, combined with dampness or wet weather. The most exposed parts of the person under these circumstances, being the very parts we find deranged.

On the proximate cause of neuralgia, a greater diversity of opinion has been advanced, than in relation to any other part of the theory of the disease. Dr. J. FOTHERGILL referred it to a cancerous acrimony; but, for a very fair and conclusive refutation of this position, the reader may examine Dr. HAIGHTON's interesting paper on this complaint, in the Medical Records and Researches. Most authors agree in attributing the proximate cause to an arthritic diathesis. Cases are recorded by Dr. LAVAGAN, and likewise by Dr. BOHMEN, in which the pain disappeared, when the gouty symptoms became developed. But Drs. DEGENER and SEIBOLD state, that they had observed, at the place affected, a tumour, which they considered to be of the same nature as gouty affections of the joints. In one case of Dr. HOSACK's, there seemed to exist a strong connexion between the two complaints. To all this it may be very properly remarked, in the words of the late Dr. JOHN W. B. MURRAY, as recorded in his very interesting essay on Neuralgia, that "as this hypothesis is not applicable to every case, at least, as the gouty diathesis cannot be detected in many instances of neuralgia, it may safely be pronounced inadequate to explain the mystery." From the views I have formed of the proximate cause of the disease under consideration, I look upon its connexion with gout, merely so far as that this latter seldom shows itself, in a very decided manner, until that time of life when the system becomes less capable of resisting the causes of disease, and more susceptible to the influence of external agents, giving rise to a long list of ailments, as we every day see in the rheumatic affections of the joints, and similar states of derangement, with which those, who have passed the meridian of life, are so continually afflicted. I cannot by any means agree in assigning gout as its proximate cause, in consequence of the observation of Drs. BOHMEN and LAVAGAN, that they found the pain, in neuralgia, to disappear, when the usual arthritic symptoms returned. We might as well maintain, that because a blister, externally applied, relieves internal pain and inflammation, ergo, the

proximate cause of the internal complaint was the fly plaster, or rather the inflammation and discharge it had occasioned. It is nothing new, in the practice of medicine and surgery, that painful affections in one part of the body, are relieved and even cured, by the supervention of pain in another, although the latter is, in no other manner, connected with, or depending upon the former; and this I believe to be the most reasonable explanation of the cases above recorded.

By Dr. ARMSTRONG it is traced to a congestion, or an increased action of the vessels of the brain. This supposition, however, is by no means supported by any of the characteristics of the disease, as they are given to us by different authors; and, so far as my own observations go, I never have met with any appearances which, it seemed to me, could sanction this hypothesis. Such a state of the vessels of the brain, as Dr. ARMSTRONG points to, would be followed by a train of symptoms, that would quickly dissipate every doubt, as to the nature and seat of the deranged action, and such, I will venture to affirm, as the neuralgia we treat of, never has, and I suspect, never can present. The latest European publication on this disease we know of, is by Mr. JOSEPH SWAN, surgeon, and in reference to what I am now examining, his words are "Those local complaints, which appear to originate spontaneously, or in some cases, where a slight wound has been inflicted, I believe to be only symptomatic of a general irritability of the brain and nervous system." I have already remarked, that in most of my neuralgic patients, no perceptible deviation from the standard of sound health, was discernible, for any length of time, previous to the appearance of their painful complaint; and in this I am borne out by almost every writer on the disease. But the reason given by Mr. SWAN is not at all satisfactory. "The almost constant failure," he says, "of topical remedies, and of the division of the affected nerve, must lead to the conclusion, that the cause of the local diseased action, or the primary affection, must reside in some other part of the body," and he locates it in the brain; but as remedies addressed to this organ have also often and entirely failed, the ground, on which he rests his conclusion, becomes quite as untenable as every other doctrine which has been advanced. To those who believe its primary seat to be in the stomach, we present the same difficul-

ties. Cases very often occur, where all the remedies which are known to have any influence over the actions of this viscus, have been, faithfully and perseveringly, employed without making any permanent or apparent impression on the neuralgic symptoms. Dr. PARRY, I think, has come nearer solving the problem than any other writer I have met with. He supposes the pain to be owing to "increased vascularity or determination of blood, (perhaps amounting to inflammation) to the neurilema or vascular membranous envelope of the nerves affected." As, however, he admits, that this vascular membranous envelope "accompanies the nerves wherever they are distributed," and as neuralgia affects parts of a particular structure only, as I shall have occasion, hereafter, more particularly to notice, the views of PARRY, however ingenious, are not competent to clear up the difficulty. To this doctrine I must again reply, when the diagnosis of the complaint we treat of, comes to be considered.

From every possible source of information, I am authorized in asserting, that neuralgia has seldom been known to occur, except in parts of a dense fascial or aponeurotic structure. The view, therefore, I have formed of its proximate cause (taking for example by far the most frequent seat of the disease, viz. the face) is, that it is an inflamed state of the periosteum of the bones, to which the nerves, involved in this disease, are distributed. The periosteum is, in its texture, very dense, and in an inflamed state of its vessels, does not admit of expansion so readily, or to the same extent, that fleshy or muscular parts do; and these remarks apply, with still greater force, to the bones beneath. When, therefore, inflammation arises here, the consequent tendency in the blood vessels to expand, being resisted by the unyielding nature of the periosteum above, and the still less yielding bone beneath, occasions a corresponding degree of pressure of the nerves of the part, giving rise to the painful symptoms of the disease. Let us see how far practical observations and positive facts will support this hypothesis. That the parts concerned are dense in their structure, and therefore unyielding in their nature, anatomical investigations conclusively establish. That in neuralgia, they are the seat of inflammation, a perusal of the cases, whose symptoms have been accurately recorded, will prove. In the one detailed by Dr. JACKSON, of Boston, and which is celebrated for

the immense quantity of the conium maculatum, taken within a given time, (amounting to three hundred grains in six hours!) the doctor tells us, that "the severe paroxysms were attended with a swelling of the gums of the upper jaw, which, from the feelings of the patient, seemed to be very considerable, but which on examination proved to be very slight." Nothing can more clearly elucidate what I maintain, than this very case. Had the parts involved, been more yielding in their texture, the patient's feelings of their enlargement, would have been less, but to the doctor's eye and touch it would have been much more considerable; because, in proportion as the parts resisted the inflammatory turgescence, in the same degree was the sensation of fulness and swelling to the patient's feelings augmented. In the case of Mrs. C., by the same author, we find among the symptoms he notices, a swelling of the gums in the jaw affected, and at times a redness of the cheek.

In one of the volumes of the Edinburgh Medical and Surgical Journal, a case is given by Dr. James Corkindale, who remarks, that at the seat of the disease, the patient "always complained of a sense of tumefaction." Without doubt, the most full and minutely detailed case in the whole history of the disease, is that of the late Dr. G. Jones, of this city. He was himself the unfortunate subject of his communication, and was almost a martyr to this complaint, for many years previous to his death. He tells us that "About the middle of July, 1806, I began to feel an uneasy sensation in the gum of the upper jaw on the right side, at a point whence one of the molares, in a lessened state, had a long time before been taken away;" and again he says, "the gum where the disease is seated, &c."* In all the examples of the disease given at the close of this essay, it will be seen, that an inflammation, not of the gums only, but of the periosteum of the bone, beyond the termination of the roots of the teeth, was noticed. One observation, I have constantly made, deserves here to be recorded; that the inflammatory aspect was by no means so marked, as, from the violence of the pain, I had a right to expect, and which the more pliant parts of our frame usually present. This may be a chief cause why the local derangement has been so much overlooked. From the violence of the patient's suffer-

* See 2nd No. Vol. 1, of Coxe's Philadelphia Medical Museum.

ings, we naturally look for most unequivocal appearances of derangement, but on examination, the blush of inflammation is so slight, and the swelling even still more so, that we are inclined to believe the patient had misconceived the seat of his disease—yet all this the structure of the part itself will satisfactorily explain. In addition to the foregoing proofs of local inflammation, in those instances in which the disease has occurred spontaneously, or from exposure to the weather, I could call attention to those derived from such instances where neuralgia has been brought on by blows, wounds, and other external injuries, as was evident in Sir E. Home's unfortunate case, as well as those related by Abernethy, Swan, Hosack, and many others. Stronger proof, however, can scarcely be required in establishing the point, that the part to which the patient chiefly refers his disease, is the seat of an inflammatory process.

Our next object is to ascertain, whether this local inflammation be the cause or the effect of the nervous affection. If it be the effect, then as such it ought always to follow a nervous derangement; and moreover we ought to expect, in every instance, a morbid change in the nerves themselves, similar to what takes place in rheumatism, and in the inflammation of the nerves which sometimes follows amputation, in both of which they are found more or less thickened, or otherwise deranged. But neither the one nor the other is the fact. I am in the constant habit of witnessing cases of the most recent standing, in which the inflammation and pain of the periosteum are quite slight, and in which the nerves affected in neuralgia give no indication of being, in any manner, implicated, until the disease has reached that degree of violence wherein the nervous affection marking it as neuralgia, begins to be developed. I ought also to remark, that an inflamed state of those parts is probably one of the most common local derangements to which we are subject; and when we consider how very much exposed the head and face are to all atmospherical changes, and the internal parts of the mouth, to numberless and constant vicissitudes of temperature, we are at no loss to account for the fact. All writers, who have traced the rise and progress of cases, tell us that their patients first complained of a local, circumscribed pain, which they could cover with the point of their finger, of about half an inch in circumference, and at this time slightly or

even not, attended with nervous twitches. Another pretty strong proof that the spasm of the nerves is a secondary effect, may be derived from the fact that, where the operation of dividing the nerve has been performed, the symptoms hardly ever subside under from seven to twelve days. If this affection derived its existence and activity from the brain or general nervous system, and if the local complaint was merely sympathetic, then, on this latter being insulated from both by a section of the trunk of the nerve leading to the diseased part, the pain, &c. ought, at once, to disappear.

Neither is the strength of this position in any degree weakened by admitting the success of the operation, of which, in many instances, there can be no doubt. Indeed, in some cases where an incision has been made in order to effect a cure by a section of the nerve, and for this purpose only, I have very little doubt but that the cure has been accomplished, not so much by a division of the nerve, as by laying open the primary seat of the disease.* As to a diseased state of the nerves, it is expressly declared by Mr. Joseph Swan, whose authority has already been quoted, that in dissections of subjects who had been affected with neuralgia, no thickening of the nerve, as is known to be the case where it has been inflamed, "or any alteration in its organization" was perceptible. As far then as the facts in relation to this disease are known, they go to prove that it is primarily a local affection of the periosteum of the bone, or of parts whose density of structure is very similar;—that the theory I have advanced, is a legitimate deduction from those facts, and competent to elucidate satisfactorily the character of the disease; and that it points to a course of treatment, heretofore, not pursued, but which has been in my own practice, thus far, entirely successful—possessing the double advantage of simplicity and certainty.

In forming our diagnosis of neuralgia, we are told by the writers on this complaint, that there are three or four diseases with which it may be confounded, viz. hemicrania, rheumatism, odontalgia, and by some, even trismus. From the first, the obvious seat of derangement appears, in all respects, sufficient to distinguish it; but I must be allowed to express my decided conviction, that

* See the case recorded in Vol. ii. of the Edinburgh Medical and Surgical Journal, by Mr. George Thilson.

where hemicrania affects the parts exterior to the cranium, it is essentially the same with the disease of the face, differing only in location; and equally manageable, by a like course of treatment. Nor do I entertain different views, of neuralgic affections of the extremities, in consequence of the peculiar structure of the parts, in which they occur, as I have already more particularly noticed, in my enquiries into the proximate cause of the disease.

In respect to cephalalgia, or where the parts next the bones of the head are diseased, it is often the consequence of a deranged state of the stomach and bowels, to which our remedies are to be addressed for its removal. In these, external pressure does not materially affect the complaint; whereas, hemicrania is much aggravated, if pressure be made immediately on the part affected. From rheumatism, much pains has been bestowed, in order to distinguish it, though I think to little purpose. It may be, and I am much inclined to the supposition, that the doctrine of Dr. PARRY, in relation to neuralgia, is very applicable to, and goes far in explaining the nature of rheumatism. If, in its acute form, this "vascular membranous envelope of the nerves,"* be the seat of inflammation, it will, in a great measure, clear up the obscurity in which the character of this painful disease is shrouded; inasmuch, as this vascular envelope "accompanies the nerves wherever they are distributed;"† and rheumatism is a complaint of the whole muscular system, as well as of the joints. Neuralgia, I have already stated, occurs in particular parts only. In chronic rheumatism, it is far from being unreasonable to suppose, that the inflamed vessels of this vascular envelope relieve themselves by a deposition of coagulable lymph, which deposition necessarily occasions a thickening of the nerves—a state, in which they are found, where this disease had existed for some time. This thickened state must render the nerves particularly sensitive, to even a slight expansion of the surrounding parts, which an increased vascularity, brought on by exposure to a change of temperature, would be likely to occasion. I have gone thus far, in order to mark what, I suspect, to be the true and only difference between rheumatism and neuralgia. Whether these views

* See Dr. Parry's Elements of Pathology and Therapeutics.
† Ibid.

be correct or not, the same remedies however will be equally applicable in either case. From odontalgia, it is essentially requisite that the disease, which forms the subject of this essay, should be distinguished. I have repeatedly met with instances, where, from the shameful ignorance of a large majority of those, who follow the profession of a dentist, one, two, three, and even six, sound teeth have been, unnecessarily, sacrificed in this complaint; and after all, without any permanent or even temporary relief. The fact is, that in no instance ought a tooth to be extracted in a case of neuralgia of the face, nor indeed under any circumstances, except it be evidently decayed and its nerve unquestionably affected. But even where this occurs, if it be the incisors or cuspidati, by a practice introduced and successfully pursued, for many years, by my friend Mr. HUDSON, of Philadelphia, they may be effectually preserved, without in any manner interfering with the curative process. I may be told, as I have often been, that although the tooth removed appeared perfectly sound, still it must have been the cause of the disease, as a cure very speedily followed its loss. But the benefit, in such cases, is owing to the hemorrhage the extraction of a tooth occasions; which benefit might have been obtained without such a sacrifice. In like manner, the complaint may terminate spontaneously, of which I have known instances, as well as of its having been relieved, or entirely cured by the supervention of some other complaint, as recorded by BONNARD and LAVAGAN, by the German translator of Dr. FOTHERGILL's work, and by Mr. JOSEPH SWAN. But no one will pretend to maintain, that we ought to leave this disease to take its course uncontrolled, with the expectation that it will terminate, in the manner just referred to. It would be equally, if not more improper, to place in our list of remedial means the removal of sound teeth. In cases, however, of decided toothach from decay of the tooth, at least with respect to the large and even small grinders, and particularly, if it be on the same side with the neuralgic affection, it ought, by all means, to be taken out; because the pain of the tooth cannot be very severe, or exist for any great length of time, without adding, in some measure, to the severity of the former. For these reasons, it becomes adviseable, that obscure cases of odontalgia, should be rendered as little so as possible; and I am forced to say, that in making this attempt, very little

assistance has been procured from the writings I have had an opportunity of examining: they are generally confused, contradictory and uncertain.

If the case, presented for examination, be quite recent, we are not to expect any material alteration from a healthy appearance in the gum, immediately around the tooth, unless, as not unfrequently happens, essential oils or similar substances have been applied to it. Where they have been used, however, there is little or no swelling, although very considerable redness; and the exterior covering of the gum is found raised in blisters, or, more frequently, entirely removed, and leaving a raw surface. The appearance of the tooth itself next claims our attention. If this be apparently perfectly sound, having as good a colour as those teeth, on the subject of which there can be no suspicion, we may then infer, that if decay exist, it must be in the parts on a line with, or below the surface of the gum. In pursuing our investigation here, an instrument sufficiently delicate towards the point, to pass freely between the teeth; flexible like a probe, and having the extreme point bent to a right angle, in order that it may catch in the cavity should there be one, will be found best to answer the purpose. This we are to pass round the tooth, against which, the bent point is to be scratched, and even to dip it a little under the gum. If a cavity exist, this will certainly catch in it; but if not, we may safely infer, that the tooth is no wise in fault, and ought by no means to be meddled with. But if the case be of long standing, and the tooth really in fault, we shall meet with more unequivocal symptoms, by which we may be guided. Under those circumstances, the gum is not unfrequently swollen and inflamed, the greatest enlargement being opposite the ends of the roots of the tooth; but with the enlargement of the gum, the pain of toothach subsides. If, in addition to this, there be a blue or blackish appearance obvious under the enamel, which will be more or less perceptible, when, as is sometimes the case, the decay extends considerably through the crown of the tooth, without its cavity being apparent, from its being situated where the tooth is close in contact with an adjoining one, we may presume the case to be more or less implicated; and proceed, forthwith, to ascertain the extent of these two defects. But, if none of these conditions be discernible, then we must proceed, as in

the first instance. As to the particular kind of pain, such as darting or obtuse, which writers give as the distinguishing signs of toothach, we will find them totally inapplicable in practice, and entitled to no reliance. I do not think it necessary to extend these details of symptoms to cases, which would be clear to the most stupid or careless investigator. Although some few have mentioned trismus, as likely to be mistaken for neuralgia of the face, yet I believe that one who could commit such an error, must have a very limited notion of the importance of symptoms, in his enquiries into the character and difference of diseases.

I have hinted in the commencement of this essay, that in consequence of the obscurity in which the true nature of neuralgia had hitherto remained, its treatment resembled rather a course of experiments, than what is looked for, and what we had a right to expect, in the present improved state of surgical knowledge. An examination of the different methods of cure proposed to combat this painful complaint, will serve to justify this assertion; as we shall find that, for the most part, remedies have been directed to the removal of symptoms, to the neglect, in the great majority of cases, of the true disease, of which all these symptoms were only a secondary effect. A few remarks will suffice to illustrate this.

For instance, the most prominent symptom in neuralgia is a painful and spasmodic affection of the nerves; the nature of these affections is, in some measure, known to the profession, as are likewise the properties of such articles as exercise a controlling influence over them. To combat the former by the latter has been the principle on which, heretofore, the curative efforts have been founded. We would, accordingly, expect the chief reliance to be placed in narcotics, and never have they been more faithfully employed than in this complaint. At the head we may place the conium maculatum, which has been most extensively employed, and certainly has effected cures when given in very large doses; but it has so often so completely failed even when freely exhibited, that in the words of the late Dr. Jones, it can be considered "only as a palliative in this disease." Stramonium has got into some repute in the neuralgic affections of young females, although as regards those who do not come within this reservation, it ranks even lower than the preceding article. I do not find that the belladonna, although noticed among the articles

prescribed, has been as much used as those already mentioned. Its effects are sufficiently known, however, to justify my declaring, that it is entitled to a very limited share of confidence. As in all other painful complaints, opium has been freely given in this: it has sometimes afforded temporary relief, but more frequently, even in the largest possible quantities, a momentary suspension of the paroxysm has not been procured. It has been so largely and universally employed, that we may safely assert, no reliance can be placed on it as a *curative agent* in this affection. By Dr. FOTHERGILL and others, arsenic has likewise been tried, and highly commended; but it does not appear that subsequent experience has enabled it to maintain the reputation it had once enjoyed.

By Dr. PHYSICK, of Philadelphia, the free use of emetics, and by Dr. WILSON and others, purgatives have been highly extolled, and this mode of treating the disease has certainly succeeded in many cases of even long standing. But, however flattering such success might appear, this method has not always realized, in the hands of others, the high expectations its introduction had raised. In short, cases every now and then occur, over which it exercises as little influence as any of the methods already enumerated. The powerful properties of the prussic acid seem to be quite useless in this complaint. The vol. tinc. of guaiac. has been given with success, but oftener without any benefit.

I have now gone through with, I believe, very nearly all of the different medicines which have, heretofore, been employed in the management of neuralgia, through the medium of the general system. I have not gone into the minutiæ of their exhibition, because this does not differ materially from the manner in which they are given in other diseases, but chiefly because I believe their administration to be altogether unnecessary in order to conduct, to a favourable termination, this distressing affection. Entertaining, however, the opinion of the nature of neuralgia, which I have endeavoured to support in the preceding pages, it becomes requisite to examine how far those articles, which are among the most powerful of the materia medica, can be taken in large quantities and for a considerable length of time, without material prejudice to the constitution. If I have succeeded in establishing the point, that the neuralgic affection under consideration is a

local derangement, then it is pretty plain, that remedies, which act on it only through the general system, must be given in very powerful doses, and their administration long continued, before relief can be expected; and such really is the fact as to their exhibition whenever they have proved successful. It will hardly be denied that the most robust frame can scarcely undergo such a course of medicine without serious, if not permanent injury. I do not wish it to be supposed that the general health is to be overlooked in this disorder; on the contrary, I have already remarked, that there are certain states of the system which particularly predispose to this complaint; and that such require a tonic and invigorating course of treatment. But this is a very general indication;—equally applicable to every other species of indisposition—and rather preventive than curative. Neuralgia may likewise exist in a habit considerably above the healthy standard. In this case the antiphlogistic plan becomes necessary.

Local remedies I shall next examine; but with most of them I believe it is only requisite that they should be named, to remind the reader they are constantly used, but never have afforded the most distant prospect of effecting a cure. Such are stimulating embrocations, blisters, caustic issues, fomentations, and electricity. Leeches and scarifications, if properly employed, will always give temporary relief; and the division of whatever nerve seems principally to be affected, has upon the whole, more frequently cured the disease than, probably, any other single remedy, or indeed, than all the others together. But instances every now and then occur, in which this operation likewise, altogether fails; and others where the complaint is in this way arrested, but often recurs after the ends of the divided nerves have re-united. This will take place notwithstanding that a portion of the nerve has been cut out. The able professor of surgery in the college of this city, Dr. MOTT, has repeatedly divided the infra-orbitar nerve in neuralgia of the face, and I suspect in the hands of no medical man has this mode of treatment been more successful; but even under his judicious management the disease has returned, rendering a repetition of the operation necessary. In the case of Dr. JONES, he repeated it to the number of eleven times. Whatever could be done in order to remove the objections to this mode of treatment, that ingenious surgeon has effected;

but still scars will be left where the operation has been performed, and these scars must be increased either in size or number, whenever, as it but too often happens, a repetition of the division of the nerve becomes necessary.

For practical purposes the management of neuralgia may be arranged under three heads. First, where it arises in individuals, enjoying, in every other respect, apparent sound health. Second, in persons of a plethoric habit, particularly with a determination of blood to the part affected. And third, in such as are of a nervous temperament, whether this be the effect of disease or of original constitution.

The treatment of the first class is very simple. The complaint as I have endeavoured elsewhere to establish, consists in an inflammation of parts of dense structure; of course the obvious and most speedy remedy is to lay the inflamed part freely open with a lancet.* Where the cheek, the most general seat of the disorder, is affected, the operation is performed from under the lip; thus doing away the necessity of causing the unsightly appearance of scars on the face. The part to be operated upon, is that from which the nervous twitches commence, and to which the patients will almost always direct your attention as being constantly the seat of more or less pain. If these indications do not exist, as sometimes happens, then the proper place on which to operate, may be found by passing the finger under the lip, and pressing with some degree of force on the periosteum of the maxillary or molar bones. The moment the diseased part is touched, the patient immediately exclaims, and sometimes by this alone the convulsive twitches are excited. This is the spot I lay open to the bone—dividing freely and to some extent the periosteum. The operation is always attended with considerable pain—much more indeed than when performed on the same parts in a healthy state; but in the course of half an hour or less, this inconvenience vanishes. If the disease returns, a repetition of the ope-

* Since the above was written, I have read with great pleasure, Dr. J. K. MITCHELL'S note in the 1st number of this Journal, p. 227. His remarks go strongly to prove the soundness of the views I have laid down as to the true nature of this heretofore obscure complaint. I think it probable the treatment he recommends, may be resorted to, with great advantage, when the disease is located in the extremities, where some risk might attend deep incisions.

ration is attended with but trifling annoyance, and if it be a local complaint, liable to be brought on by the usual exciting causes of colds, its return ought not to surprise us, particularly in delicate or nervous habits.

Where the complaint arises in those who come under the second head, in addition to what I have already detailed, it is also requisite to bring the system down to a natural or healthy standard, as otherwise the local operation will produce but a temporary effect—at least, slight exposure to variable damp weather will be very apt to reproduce the patient's sufferings. The medical maxim of reducing an over excited system to, or a little below, the natural standard, in the treatment of acute local derangements, is to be particularly borne in mind in the case before us. It is not necessary that I should here detail the manner in which this is to be effected, as the first case given is sufficiently minute in this particular.

With respect to the third class or those of the nervous temperament, it is to be observed, that it is that habit of body which is beyond all comparison the most frequently affected with this species of indisposition. In some cases it is not improbable but that the loss of tone in the nervous system has been a consequence of long continued suffering from the complaint; but in a very large majority of instances the reverse of this is the fact. This general irritability of the nerves is observed to have existed for a period more or less extensive previous to the development of the disease under examination. As it is in this class of individuals that neuralgia is more frequently met with, and as this debility of the nerves is in general brought on by a weakened or otherwise altered action of the stomach, it was very natural to refer the primary cause of neuralgia (in the obscurity in which its nature has heretofore been enveloped) to the unhealthy state of this viscus. Such are the views at the present day of the celebrated Abernethy, of Dr. Wilson, and likewise of Mr. Hutchinson, who has evinced great ardour in investigating the nature of this affection. But it appears to me probable that this state of the stomach is productive of the disorder of neuralgia, in no other way than by occasioning such a highly susceptible state of the nerves, as renders them extremely sensitive to even a slight irritating cause, and of course particu-

larly so when there exists an inflamed state of those parts in which we always find the disease to be located.

Our first step towards a cure in those who fall under this head, is to have recourse to the operation as already explained, which, so far as my own experience goes, will be found immediately to arrest the progress of the complaint. But in order to remove the diseased sensibility of the nerves, and thus do away their extreme susceptibility and consequent liability to a recurrence of the disorder, a course of tonics, as advised by Mr. HUTCHINSON, Mr. SWAN, and others, becomes necessary. If the practice laid down by either of these gentlemen be indiscriminately pursued, it may be easily seen that as applied to those who come under the first head, it would at least be useless, and that if the sufferer be restored to health, it is a spontaneous cure; a termination I have had occasion elsewhere to notice, as being by no means rare, and for which the intended remedy ought to be entitled to no credit. As respects those who constitute the second class, a course of tonics must obviously be improper; and in reference to those who form the third, it is necessarily a very roundabout method of effecting a cure, and must sometimes, (as it is well known it but too often does,) totally fail. As already stated, the disease not unfrequently spontaneously subsides. In other instances, however, although the local inflammation which occasioned the complaint may have passed away, yet the deranged impression made on the nerve or nerves of the part shall continue. Indeed it is not unreasonable to suppose, that in many of those cases of long standing, the disease is kept up chiefly, by this very disposition which it is well known the nervous system possesses, of continuing an action, healthy or diseased, once implanted.

I have known one or two instances in which the pain of neuralgia has been excited at intervals of from one to three or four weeks, the periods, however, very irregular, but with nearly entire cessation from pain during the intermediate days. As no very obvious cause could be assigned, the circumstance seemed at first inexplicable. But strict inquiry led to the discovery that the arterial system was always more or less excited on these occasions, owing probably to slight errors in diet or something of that nature. While the pain continued, whatever produced a determination of blood to the part affected, (the head,) invariably aggravated the

patient's sufferings, such as stooping, which he was always most careful to avoid. This morbid sensibility of the nerves, it is very fair to presume, a course of tonics or narcotics has, in numberless instances, removed, and thus served to sanction the authority of those who assert that these are the proper medicines to be prescribed for the cure of this distressing malady. The fallacy of this hypothesis is too obvious to require a formal refutation.

Acupuncturation has lately got much into vogue as a remedy in this disease. It has been pretty freely tried in many diseases, not merely in neuralgia, but in any and every species of derangement, in which a chance of success could be anticipated; and the assertion of the French experimentalists, that the benefit which the needles confer is through a galvanic influence, is not only plausible, but reasonable. Indeed we were prepared in some measure to coincide with this view from the previous notices we had had of their use by Dr. HAIME of the Continent, and by Mr. CHURCHILL of England, who declare that in inflammatory cases they are not only useless but injurious. In like manner, where a thickened state of the nerves follows inflammation, it is not easy to conceive in what manner they could prove beneficial. But where a mere morbid sensibility remains after the inflammatory action has subsided, such as I have just remarked to occur in neuralgia, I think it highly probable that acupuncturation will be found serviceable.

The cases which follow will point out so fully the manner in which I have been in the habit of proceeding, as to render a more minute detail in this place unnecessary.

Case the first, of Mr. W. B. December 8, 1823. He is of a very full habit; about 55 years of age; has always enjoyed very good health, not being troubled with any particular disease, and seldom suffering from even slight indispositions. In the month of August last, while at his place in the country, he was much exposed (from necessity and inattention,) to the influence of the weather, which happened at the time, to be very variable, as to the degree of temperature, and also combined with dampness and a good deal of rain. In consequence of this, he was attacked with a pretty severe cold, which affected his head chiefly, attended with occasional shooting pains through his jaws, extending up the side of his face, and likewise affecting apparently the roots of his upper

back teeth, particularly on the left side. By some trifling medicines, low diet for a few days, &c. he got entirely rid of the unpleasant fulness of his head, and all other disagreeable symptoms, except the shooting pains through the jaws. These were not however, often repeated during the twenty-four hours, or very severe, consequently, they were not materially regarded, expecting they would gradually subside in a few days. But this did not prove to be the case; on the contrary, they evidently grew worse. His general health, however, being very good, the complaint was permitted to take its course without restraint. On his return to town, in the month of November following, it had become extremely troublesome from the increased frequency with which the paroxysms recurred, but much more so from the great increase in the violence of the pain. Still, however, from an aversion to place himself under medical restraint, and also from some unnecessary apprehensions with which his mind became influenced, he persevered in delaying to apply for medical assistance. His complaint continued to get worse, until the month of December, when he applied to me for advice. His sufferings were now excruciating. A paroxysm consisted of one, two, and sometimes three violent nervous twitches; commencing immediately around the malar process of the left superior maxillary bone, where it was very severe—extending as far back as the third molar tooth, but being most intense opposite the ends of the fangs of the first large grinder, from which it darted up towards the internal canthus of the eye, which was considerably inflamed, attended with constant overflowing of tears from the under eyelid, which was drawn down by the repeated contraction of the muscles.

The infra-orbitar nerve, as it passes out from its foramen, was evidently affected, and the muscles perceptibly and painfully agitated at every paroxysm. The pain extended likewise up to the temple, and appeared to diffuse itself over the fascia, from which the external surface of the temporal muscle originates, and by which it is covered. Over the parts I have described the pain was most agonizing. The corresponding side of the face was also a good deal but by no means so acutely affected,—the basis of the lower jaw on the left side was likewise involved, but in a still slighter degree. But the extension of the complaint to the two last situa-

tions, had only happened within three or four days previous to his present visit to me. While Mr. B. was giving me these details, he was interrupted twice or thrice, by a recurrence of those painful nervous twitchings, which were so extremely severe as to cause him to raise his hand suddenly and inadvertently to the side of his face and press the parts with considerable force, which mitigated in some degree their violence. On attempting to examine his back teeth, one of which he imagined must be decayed, and which he believed to be the cause of his complaint, my hand being rather cold, and the end of my finger accidentally touching the first large grinder of the left side, it immediately excited an acute paroxysm of pain. He then told me that whatever he took into his mouth, particularly fluids, either above or below a moderate temperature, invariably brought on several severe attacks. He had been in the habit for some time past, of taking a short nap just after dinner, and about the dusk of the evening, as he sat in his chair; but latterly as sure as he began to dose he was aroused by his unwelcome companion. This was likewise the case during the night. The warmer he got in bed, the more acute and the more frequently repeated were those attacks. Being, as I have already said, of a very full habit, I thought it adviseable to make some reform in this particular, although he was altogether free from general fever. Having lanced his gums very freely around all those teeth to which the disease appeared to have extended, I directed him to be very abstemious in his diet, and on returning home, to take of tar. potas. et sod. ℥ jss. and to let me see him the next day, unless he found himself materially relieved, in which case he might postpone his visit until the second day.

10th. Hoping that the quantity of blood drawn from his gums would have sufficed for a cure, he had postponed taking the salts until the morning of the 9th, when not experiencing any relief, he took it and it operated very freely, without any appearance, however, of amendment in his complaint. His gums were again freely lanced; he was directed to pursue the same course of diet, and to repeat his medicine on the morning of the 11th, unless he found himself much better. 12th. The severity and frequency of his attacks are not at all diminished. His gums were again extensively lanced, and as his low diet and copious evacuations had not made any very great impression either on his pulse or strength, he was

directed, if no abatement should take place in his symptoms, to repeat the following morning, the same opening medicine or take a sufficient quantity of calomel and jalap.

14th. Still no relief, as to the left upper jaw, face, and side of the head; but the lower jaw of the same side, and the upper jaw of the opposite side, are not so painful. As some little relief appears to be gained by the course pursued, I determined to continue it; and, therefore, again had recourse to local blood-letting from the gums and to his former purgative. 16th. He thinks the affection of the left side as severe in every respect as it was at his first visit, although a very low diet has been observed; every other day free alvine evacuations procured, and the gums lanced in every direction until they have the appearance of being cut to pieces. Indeed I should be fearful of pursuing it much further, lest they would not unite. This course, as might be expected, has brought down his pulse considerably. His former drowsiness and tendency to sleep after dinner has entirely left him, and he also begins to observe, that any considerable exertion, or walking for half an hour, is followed by a good deal of weakness and lassitude. Every thing seems to indicate that general depletion has been carried as far as the case would sanction; but the chief cause of distress is in no apparent manner removed. In examining the affected part this morning, which I did with much minuteness, I discovered that one spot of the periosteum of the maxillary bone between the malar process and the nose, pretty high up on the cheek, was extremely sensitive whenever touched, and had a puffy feel to the finger; whereas, in a healthy state, those parts are quite firm and unyielding to the same degree of pressure. Not having noticed this before, I was induced to repeat my inspection of it several times. Whenever it was touched even slightly, a return of the painful spasm more or less severe was always excited. When compared with the same parts in a healthy state, the sensation to the finger was very different and peculiar. Under these circumstances, I determined to try what benefit would be derived by laying this diseased spot freely open with a lancet, under an impression that the complaint might be what every subsequent opportunity of testing it seems to confirm. The incision was acutely painful, more so than all the others I had previously made on

he gums, combined; and the flow of blood was pretty copious. The relief was almost instantaneous, and although he remained half an hour with me, he continued perfectly free from the distressing affection of the nerves, or indeed, any other inconvenience than the smarting which necessarily attended the wound I had made. 17th. Since his last visit, he has had but one very slight twinge, so extremely trifling, that under other circumstances it would not have been noticed. As it had occurred only a short time before he called, I determined to renew the incision of yesterday. It bled with some freedom, but with it all traces of this troublesome, painful, and distressing complaint vanished. He gradually returned to his customary course of living, and has ever since remained perfectly well.

This case is worthy of note, as showing how little is to be expected in severe and strongly marked cases of neuralgia of the face, from lancing the gums only; it is quite inadequate to produce any benefit except in the forming stage of the disease. In the foregoing instance, it removed the affection from two of its seats, but the third it was quite incompetent to cure or even to afford a temporary alleviation of its severity. This precisely agrees with what others have observed as to the benefit of remedies applied to the gums—these are not the seat of the disease.

Case 2nd, of Mrs. H. whom I was requested to see in March last. She was about thirty years of age; of a tolerably strong, healthy constitution, although after her confinements, she is subject to some slight nervous complaints. I found her in her room, which she had not yet left after her accouchement. She complained of an extremely severe painful affection of the right side of her face, extending over all that side of her head likewise. She had been troubled with it for the last two weeks, and for it had been cupped; had taken all along the mineral tonics, and was at the time of my visit, still suffering from the effects of a blister, which had been applied solely with a view of relieving her from this painful and extremely troublesome complaint. It is about six weeks since her confinement, previous to, and since which, her nervous system has been a good deal deranged; but relief had been obtained from all her inconveniences except the present one. Here the remedies above noticed had made no impression whatever. Her rest, at night particularly, was so much

broken in upon, (for it was then far more troublesome than at any other period of the twenty-four hours,) that both her family and physician became very apprehensive, that from this circumstance alone, something, even more serious than her painful complaint, might be the consequence; and, hoping that the cause of what had proved so untractable might be some defect in her teeth, requested me to visit her. After the strictest examination of her teeth, however, I could not detect any thing to which her present sufferings could be attributed. I then examined the part from which the pain immediately proceeded. It was situated as high up as the point of the root of the eye tooth, and over that of the first small grinder or bicuspid, extending upwards and outwards towards the right temple, and pretty generally over all that side of the head; affecting likewise her ear. In this instance the soft puffy feel was by no means as perceptible as in the previous case, still there was a sensation under pressure from the finger, partaking much of that character, and quite different and distinguishable from a healthy state of the parts. The slightest pressure invariably excited all that acuteness of pain which so strongly characterizes this species of indisposition.

Feeling somewhat confident as to the nature of the complaint, and the probability of a cure, not only from the success of the case which precedes this, but from two others very similar, which had already fallen under my notice, I told her I could very speedily, and with considerable certainty, give her relief. On the spot which to the touch was so very painful, I inserted the lancet, and made a very free incision, both right and left, to the bone. In this way I completely divided that part which was so tender to pressure. The operation, as in the case already detailed, was attended with considerable pain, which, however, soon subsided. The quantity of blood which escaped did not amount to more than two table-spoonfuls. I left her with the request that if she was not entirely relieved, I might be sent for the next day. I did not, however, again see or hear from her until August following, when she paid me a visit, to request I would remove a tooth which, she believed, had caused her a great deal of pain for the last four or five days. On examination I could find no defect in her teeth sufficient to account for the inconvenience she was experiencing. But on passing my finger with some degree of

force over the part I had operated upon in March last, she immediately exclaimed, that was the spot from which proceeded her present sufferings. Having explained to her the nature of her complaint, and that it was of the same character with that for which I had been requested to visit her in the spring, I proposed a similar operation, with perfect confidence of success. But she candidly confessed to me her doubts of being relieved by what I now proposed to do; as well as her disbelief that it was to the operation she was indebted for the benefit she had experienced on the former occasion; simply because the relief, from a state of extreme and almost constant pain, was so entire and so immediate, that she could not believe that, or comprehend how, an operation, comparatively speaking, so trifling, could effect so sudden and so desirable a result. She declared at the time that within half an hour after the operation had been performed, every unpleasant feeling had entirely left her; and that she had not been in the slightest degree troubled with any similar affection until within the last few days, when the inconvenience of which she now complained, and which had subsequently increased in violence, began to make its appearance. From her answers to interrogatories, it was clear that the present re-appearance of her complaint was owing to exposure to a current of air from a window, near which she was seated the greater part of an evening. It was at her country house. As she was willing, however, to submit to what I proposed, and if successful to give to the operation all the credit to which it was entitled, I applied the lancet as before, and laid the part which indicated much pain to slight pressure, freely open. It bled freely, and even more than on the former occasion; owing, no doubt, to her habit being now much more full; for, with the exception of the affection of her face, she was now in the enjoyment of very good health. To the eye, in all that part which was obvious on elevating the upper lip, the injection of the blood vessels was very little more than what a healthy appearance would present. The incision was now, as formerly, exquisitely painful; but this soon ceased entirely; nor has she as yet had any recurrence of her complaint.

I thought this case varied so much from the former as to be worthy of particular notice. It will be seen by it that exposure re-produced the disease, although in every other respect the pa-

tient's general health, as well as her nerves, were much stronger than when she had been formerly attacked. If the view which I have taken of the complaint be correct, we should not be surprised to meet with instances in which the affection is re-produced; neither can it throw any doubt over so simple a mode of treatment. During the summer, but particularly since the weather has become very changeable, I have had several other cases, but as they did not present any circumstances to distinguish them particularly from the foregoing, it does not appear necessary to give them in detail. As the case which follows, presents some features by which it differs from the preceding, it may not be uninteresting to give it in full.

Case 3d. Mrs. W. paid me a visit by direction of a most respectable medical gentleman of this city, under whose care she had been for the last three months, for a most painful affection of the left side of her face, presenting all the characteristic marks of *tic douloureux*. She was about thirty years of age, and naturally of a very delicate constitution, though not subject to any particular complaint or disease. For the disorder in her face she had undergone a course of tonics—had been cupped repeatedly in the neighbourhood of the diseased part, and had likewise been blistered; but so far from any improvement taking place, she had become within the last fortnight, very considerably worse. When first attacked, her sufferings did not continue longer than from a day to a day and a half; the paroxysms constantly succeeding each other, then subsiding, and leaving her entirely free from pain or inconvenience for a week or ten days. Latterly, however, her attacks had become more frequent, more intense in their character, and of much longer continuance. This had brought on great mental distress, even when entirely free from local pain, from an apprehension that the rest of her life was to be passed subject to continual repetitions of this acute disorder. Being naturally timid, she had become almost a martyr to her fears and sufferings. When she was not experiencing the latter, her energies and strength were completely prostrated by the former. In this way she went on from day to day in a state of wretchedness hardly credible. She had lost all relish for every kind of amusement; nor could she give her attention to any subject unconnected with her complaint.

As she was naturally of a rather delicate and nervous temperament, I found I should have greater difficulties to contend with in this than in any former case. On examining the part where the pain always commenced, I found it evidently inflamed, but certainly not so much so as the violence of the sufferings would have led me to expect. What is properly speaking, the gum, was in this instance more the seat of derangement than in any previous case I had witnessed. But all the teeth in the neighbourhood were perfectly sound. The slightest pressure on this part, caused the pain to dart with the greatest rapidity towards the inner angle of the eye, to the temple, and over all that side of the head. In this spot I inserted the lancet and laid it freely open to the bone. It was followed by a pretty considerable discharge of blood. In order to counteract the effects of her delicate habit, I gave her such directions for invigorating her health and strength, as her case seemed to call for. But these are circumstances so well understood by the profession as to render their detail in this place unnecessary. The operation here, as in all other cases, was extremely painful; but this subsided even before she left me. Having endeavoured to inspire her with perfect confidence in the certainty of a speedy and complete cure, I dismissed her, telling her however, that the lancing might be necessary once or twice more should the pain again recur; in which case she was to visit me immediately. I did not see her again for nearly seven weeks, when she called to tell me, that after the necessary effects attending the operation of lancing had subsided, she had remained totally free from pain or inconvenience of any kind; and such I have every reason to believe is the case up to the present day.

Since the visit of this lady I have had three or four other cases, in two of which the persons were attacked only at night, after they began to get warm and comfortable in bed; the pain then became so intense as to prevent them from enjoying repose until morning, when it gradually left them and they fell into a sound sleep. In one of these individuals, on two or three occasions, the violence of the attack obliged her to walk her room the whole night. Neither laudanum, nor any thing else to which she could have immediate recourse, seemed to exercise any influence over her suffering. In all these cases one simple incision was fully competent to a complete cure. It is to be observed that the opera-

tion is performed by raising the lip; of course no scar on the face is caused. But if the disease be situated where an external cut cannot be avoided, as on the back or side of the head, or in the extremities, the indication in all instances is to lay open that spot where the pain seems invariably to commence, and which, generally speaking, is quite tender on pressure. The general health of the patient ought by no means to be neglected, as by a proper attention to this, a recurrence of the disease may be prevented; which is even more desirable than to be able to effect a cure.

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ARTICLE II.—*On the use of the Oil of Turpentine, in a particular condition of fevers.* *By* GEORGE B. WOOD, M. D., Professor of Chemistry in the Philadelphia College of Pharmacy.

By those who believe in the specific nature of diseases, and in the specific action of remedies, it has always been considered an object of primary importance, to ascertain by repeated and accurate observation, to what precise symptom, or combination of symptoms, any particular medicinal agent is especially applicable. To a want of such discrimination, it is, I believe, generally attributable, that different physicians meet with such different success in the use of the same remedy in the same complaint; and he who discovers and introduces to the notice of the public a new medicine, or a new application of an old medicine, may frequently blame his own insufficient or inaccurate description of the precise circumstances under which he has found it useful, for the discredit into which it is so liable to fall with the rest of the profession.

The design of the present communication is to point out a certain condition of fever, in which the author believes he has found the spirits of turpentine peculiarly beneficial. This remedy has long been used, with much advantage, in low forms of fever, as a simple stimulant; and it has recently been the fashion to prescribe it in cases accompanied with stomachic or peritoneal inflammation, in the yellow and puerperal fevers, for example, as a counter-irritant. But at present, attention is called to it in neither of these capacities.

It is well known to every physician of moderate experience, that in our protracted remittents, the tongue, instead of cleaning itself gradually from the edges, occasionally throws off the fur at once, in large flakes from its surface, which is left red, sore, and of an almost glassy smoothness, totally unlike the natural papillary structure. This appearance will, in almost every instance, be found the harbinger of convalescence, which, however, as may readily be conceived from the condition in which the mucous lining of the stomach and bowels is left, must be slow, and liable to occasional interruptions.

But sometimes a disposition may be observed in the tongue thus suddenly to throw off its fur,—the operation may even have commenced and proceeded to some extent, so that a considerable patch of smooth denuded surface may be presented, when suddenly the process ceases, the tongue, if before moist, becomes perfectly dry, and a train of alarming symptoms sets in, which, if not speedily arrested, conduct the patient to almost certain death. I have repeatedly seen instances of the typhus mitior or nervous fever, in which a portion of loosened fur in the middle of the tongue had given me hopes that a favourable crisis was approaching, when the suspension of the clearing process, and the occurrence of a harsh aridity, have given me evidence that the force of disease was overcoming the efforts of nature, and my patient has sunk at the very moment of anticipated recovery. The symptoms which accompany or immediately succeed this unpleasant change, are tenderness and slight distention of the abdomen, dark and offensive stools, high coloured urine, a dry and harsh skin, frequent and feeble pulse, wandering intellect, and an anxious, suffering expression of countenance.

Stimulation with carbonate of ammonia and wine-whey, the use of blisters, of opium and purgatives, combined sometimes with serpentaria and peruvian bark, the malt liquors, and nourishing food—remedies which my own studies had suggested, or which were recommended by physicians in consultation, have often proved utterly ineffectual; and the occurrence of tympanitic abdomen, hiccough, and constant low delirium, has proved the immediate precursor of a fatal issue. In one instance, intense abdominal pain occurred toward the close of the disease, and all the symptoms of violent peritoneal inflammation were presented.

Examination after death discovered the effusion of the intestinal contents into the cavity of the peritoneum, and one or more large ulcerated openings in the lower extremity of the ileum, plainly indicated the passage through which they had escaped. The inflammation resulting from the presence of this foreign matter, had given rise to effusion of coagulable lymph, which covered the external coat of the bowels, and had begun to produce adhesions.

On opening the ileum, its mucous surface was found ulcerated in many places, and the source of the mischief was thus clearly developed. As in this case the occurrence of unpleasant symptoms had been simultaneous with that abortive effort in the tongue, before noticed, to discharge its load, I was led to the supposition that this last appearance might be indicative of the commencement of the ulcerative process in the mucous surface of the intestine. The use of balsams and terebinthinate remedies has proved eminently serviceable in certain states of obstinate chronic diarrhœa and dysentery, in which there was reason to suspect ulceration of the bowels; and an obvious explanation of their operation was, that by their immediate contact with the ulcerated surface, the morbid action was subdued, and the parts allowed to heal. It required no great exertion of ingenuity to transfer the same reasoning to the cases of fever which I have described, and on the first opportunity which presented, I prescribed the spirits of turpentine, in the form of julap, in the usual dose of ten or fifteen drops, frequently repeated. The case in which it was given, I had considered almost hopeless; but twenty-four hours had not elapsed before a decided change for the better had occurred, and in a few days the patient was convalescent. The same result has been obtained in other cases of a similar nature, and at present I approach this complication of unpleasant symptoms, not indeed with an absolute certainty of success, but with the confidence which an experience, generally successful, inspires. It is true that I seldom trust the cure to the spirits of turpentine alone, but make use of whatever auxiliary measures the symptoms appear to demand. To this remedy, however, the chief credit is, I think, undoubtedly due, for before its employment, the best plans of management which had been suggested often proved abortive.

To the imperfectly denuded and arid state of the tongue, which

was among the first and most obvious signals of danger, succeeds, by degrees, a new moist brownish or yellowish-white coat, spread evenly over its surface. With this change, an amelioration of the other alarming symptoms is gradually experienced. The tension and soreness of the abdomen are diminished, the discharges assume a more natural appearance, the pulse is lessened in frequency and increased in force, moisture often covers the skin, and the mental alienation vanishes. The new fur now slowly begins to disappear, and the patient recovers, as from an ordinary attack of fever.

It cannot be as a stimulant simply, that turpentine acts in this form of disease; for the principal danger is obviously not in the prostration of the patient, and the requisite degree of stimulation may readily be obtained from wine or the volatile alkali. In the ordinary prostrated cases of typhus, it often does much good by its powers of exciting and maintaining the vigour of the circulation, and may be used with great advantage in alternation with other medicines of the same class; but in the particular condition of fever which I have endeavoured to describe, its place can be supplied by no other remedy, and though the theory of its operation, upon which I ground its employment, may be defective, it must certainly be allowed to exercise, in some way, a specific influence over the disease.

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ARTICLE III.—*Remarks on the abuse of Blood-letting, in Recent Accidents. By* REYNELL COATES, M. D.

A popular prejudice in favour of the employment of venesection, immediately after the occurrence of severe injuries, prevails to a great extent, and has been productive of serious mischief in many cases which have fallen under my notice.

To do away with opinions deeply rooted in the minds of the vulgar, is a task of great difficulty, and it can only be accomplished by the persevering and continued exertions of enlightened men. A Medical Journal, confined in its circulation within the limits of the profession, is an instrument ill calculated to compass such a design. The prejudice of which we speak has, however,

established itself among medical practitioners, and it is by no means an unfrequent occurrence to meet with cases in our public institutions, in which the treatment has been rendered much more difficult, and the life of the patient endangered, by the improper abstraction of blood immediately after recent accidents. This may be in part accounted for, by the extreme anxiety with which the friends or spectators entreat or even demand the employment of the lancet. The young practitioner, unused to the confusion of the crowd, and bewildered by the extreme distress of the friends or relatives of the injured person, frequently finds himself dispossessed of that cool and undisturbed presence of mind, so necessary at such a juncture; and yielding to the torrent, he pursues a practice, which, at a calmer moment, his better judgment would lead him to condemn.

It is universally known, that after every extensive injury, the system remains in a state of collapse for a longer or shorter period, according to the circumstances of the case. During the continuance of this deficient action, it is often necessary to have recourse to the proper measures for supporting the temperature of the body, while we employ, with freedom, the most powerful stimulants—wine, brandy, or even the volatile alkali, in order to rouse the latent energies of the system. By pursuing these measures we frequently succeed in saving the life of the patient when in the utmost danger. The necessity of resorting to this plan is so evident in the generality of cases, that it needs no comment. What, then, will be the inevitable consequence of a treatment diametrically opposite?

Notwithstanding the obvious impropriety of employing venesection during this state of collapse, I clearly recollect the history of several cases in which it was resorted to by professional men, whose residence in our metropolis had given them superior advantages in the acquisition of surgical information.

The following notices are given as illustrative of the effects. A man was admitted into the Pennsylvania Hospital in the year 1823. He stated that he had fallen from a height of about ten feet, and that the Physician who was called, had bled him immediately, until he fainted.—With the exception of the jar, this man had been very slightly injured; but, in consequence of the unseasonable bleeding, the pulse at the wrist remained imperceptible for seve-

ral hours, and the patient recovered very slowly, under the employment of volatile alkali, brandy, and other stimulants. He left the house after several weeks had elapsed, pale and enervated, and it was probably long before he regained his natural vigour.

A patient was admitted into the same institution, (date not recollected,) who had been suffocated by descending into a neglected well. In a few minutes after he was raised into pure air, his breathing began to be tolerably regular, but his pulse was exceedingly feeble. By the advice of a physician the veins of his arm were opened, and a few ounces of blood abstracted with great difficulty. These circumstances were narrated by a student who attended him to the Hospital. At the time of his admission he was breathing with great stertor and at long intervals, and the pulse was nearly, if not entirely, imperceptible. Warmth, frictions, and general irritants to the skin, were applied, and stimulants were exhibited; of which, however, the patient was unable to swallow any considerable quantity; pulsation at the wrist became evident after some time, and continued so, for a short period, but again sank, and the patient died in a few hours.

During the present year a man fell from a ladder and received a severe contusion of the back. Some one who officiated as a physician, immediately abstracted blood to a considerable extent. The patient fainted three times, in quick succession, and the physician becoming alarmed, ordered brandy to be exhibited, to counteract the pernicious effects of the lancet. The patient was admitted into the Hospital in a state of intoxication. I am unable to declare whether the gentleman who first attended this case was, or was not a regular practitioner.

It would be easy to enlarge this list of cases to a considerable extent, but those already adduced are amply sufficient to elucidate the subject—it is therefore unnecessary to engross the time of the reader with further details. All who have *properly* attended the practice of our public Hospitals can estimate the importance of the subject.

If there be any circumstances under which it is proper to delay the application of the lancet for a longer period than usual, after reaction is completely established, it is in those cases where the patients have been addicted to the intemperate use of spirituous

liquors. Delirium tremens is unfortunately a very frequent disease in our country; and, in the lower orders of society, its ravages among those who have suffered under the depressing effects of severe local injuries, are alarming in the extreme.

Every thing which tends to increase or to continue these depressing effects, must be pernicious in the last degree; and the lancet should be employed with the greatest circumspection whenever we have reason to dread the appearance of this disease. I do not pretend to assert, that traumatic inflammation in drunkards but seldom calls for the abstraction of blood. I contend only for delaying this remedy until the urgency of the symptoms compel us to employ it, and for the necessity of keeping constantly in view that we are steering between a local disease of considerable importance on the one hand, and a constitutional affection of the most serious grade upon the other. The greatest judgment and discrimination are necessary in the treatment of cases of this description; and sometimes (as in certain compound fractures) the question of blood-letting is scarcely less perplexing than that of amputation. I have witnessed fatal effects from neglect of these precautions in several instances, and serious difficulty in many.

In the commencement of this paper, I have said that the necessity of a stimulant plan of treatment in the extreme prostration of the system, consequent to severe accidents, was too evident in the generality of cases to require any comment. In injuries of the head, however, there may exist reasonable doubts of its propriety. The diagnosis is here by no means distinct—any one who has examined a number of cases, will be forcibly struck with the occasional inaccuracy of deductions drawn from any or all the symptoms, by which we attempt to distinguish between depression of the bone, rupture of a cerebral vessel, and simple concussion.

In the first of these accidents, no treatment can be attended with material benefit until the depressed portion is elevated: in the second, every attempt at reaction, every thing that tends, either directly or indirectly, to accelerate the circulation, must heighten the danger. In the case of simple concussion, the way would be much more open, could we pronounce with certainty that no *læsion* had taken place, and in some instances this may perhaps be done. There could be no impropriety in treating these instances upon general principles, provided we are careful to watch

with the greatest attention the first appearance of reaction, and to guard against its consequences; but, unfortunately, this positive discrimination is, in the majority of cases, utterly impossible. As a general rule then, it would be extremely dangerous to administer stimulants to hasten the recovery of the system after injuries of the head: but it would be still more improper to bleed in anticipation of reaction.

With danger upon either hand, would it not be much more rational to leave the powers of the system to recover their natural vigour, by their own inherent energy, while we remain in readiness to check their undue violence?—Instances of the pernicious effects of the contrary plan are, but too frequently, met with.

I shall close the present paper with some remarks upon the treatment and post-mortem examination of a case of injured stomach, which came under my care while acting as House Surgeon to the Pennsylvania Hospital.

John Feigan was admitted into that establishment on the 10th of May, 1823, at 9 o'clock, A. M. He had been engaged in shoeing a horse; which threw him down, and trod upon his epigastrium.

The patient walked from the gate of the institution to the ward, with the assistance of two men; but his system was exceedingly depressed, skin cold, and pulse hardly perceptible. He stated, that about half an hour had elapsed between the time of the accident and that of his admittance.

He was placed at rest upon his back, and as he complained of a good deal of pain, I directed him to take sixty drops of laudanum. In about three hours, there was a slight attempt at reaction. Cups and a blister were then applied to the abdomen. At four o'clock, P. M. his pulse had sunk again to such a degree as to be scarcely perceptible. He had vomited about a gill of blood, and continued to vomit violently, but without discharging any considerable quantity of matter.—I directed

R. Sp. terebinth, - - - - - - ℥j.
Pulv. G. arab. - - - - - - ℥ss.
Sacch. alb. - - - - - - - ʒij.
Aq. puræ. - - - - - - - ℥vss. *m*
℥ss quaque hora sumenda.

At six o'clock, P. M. pulse at the wrist imperceptible. Patient vomits occasionally. Ordered

R. Carbon. ammon. - - - - - ʒij.
Aquæ puræ. - - - - - - - ℥vss. *m*
℥ss quaque hora sumenda.

Placed a sinapism over the epigastrium, (the blister having acted very slightly,) and ordered the extremities rubbed with the decoct. canthar. in sp. tereb.

May 11th, at 10 o'clock, A. M. pulse imperceptible, extremities cold, skin livid, and the patient has some mental aberration; at 3 o'clock, P. M. he died.

*Examination Post-Mortem.*

*Peritoneum.*—The whole surface of the peritoneum was lined with a thick coat of fibrine; the cavity of the abdomen contained about three quarts of pale yellowish serum, filled with yellow flakes of lymph, and faintly tinged with blood.

*Intestines.*—The intestines were universally and deeply reddened, and were completely agglutinated by a general exudation of coagulable lymph. The proper coats of these viscera exhibited nothing peculiar, the inflammation being confined to the peritoneal covering.

*Liver, Spleen, and Kidneys.*—These organs were free from apparent injury, and wore a healthy aspect. The bladder, however, contained no urine, although none had been discharged from the time of the accident. It was firmly contracted.

*Stomach.*—The cellular coat of this viscus was every where filled with injected vessels, in great number, and of large size. The mucous coat of the cardiac extremity was pale, except in a few spots where the blood appeared to have subsided after death; but at the pyloric extremity it was considerably reddened, exhibiting unequivocal marks of inflammation. I could not discover the slightest abrasion, either in the stomach or duodenum, which last viscus was in a healthy condition.

*Remarks.*—It will be noticed in this case that the reaction, if indeed it deserves that name, continued but about four hours; in nine hours, the pulse at the wrist became imperceptible, and at the expiration of thirty hours, the patient expired.

It is impossible to believe that the violent effects of inflammation, which were displayed upon opening the abdomen, resulted

during the four hours of increased action. We are compelled then to admit, that while the system is labouring under the immediate effects of a mortal blow, while the skin is livid, the extremities cold, and the pulse at the wrist nearly, if not entirely, absent, while in fact every thing announces the rapid approach of dissolution from a direct prostration of vital power, the stomach and peritoneum are capable of taking on the most violent inflammation; that adhesions to an immense extent may be formed, and quantities of coagulable lymph poured out into the cavity of the abdomen.

When a patient is admitted into the Pennsylvania Hospital, immediately after receiving a severe contusion in any other part than the head or spine, and when there is danger of a fatal termination from direct debility, it has long been customary to expedite reaction, if possible, by the exhibition of volatile alkali and other stimulants; and in most instances this practice has been attended with the happiest effects; but I think few will assert, after reading the foregoing case, that the same treatment is universally applicable. Again—it is well known, that in inflammations of the stomach the pulse is but a feeble guide to the practitioner, that venesection is not only proper, but absolutely necessary in many instances where the arterial action is exceedingly diminished: but no experienced surgeon, we are convinced, would dare to recommend the employment of the lancet in such a case as that which we have just narrated.

It is more than probable that the mischief resulting from so severe an injury, placed our patient far beyond the aid of medicine; but cases will no doubt occur, in which judicious treatment might establish a reaction, and thus preserve the life of the patient. Local irritants, by creating a counter-stimulation, at once suggest themselves; but we should select such as act with a degree of promptitude, proportioned to the emergency of the case. The application of a towel dipped into boiling water, has been resorted to with great advantage by practitioners in the East Indies, in various severe visceral inflammations;* and the employment of

* In Calcutta they are in the habit of employing little baths of tin, adapted to the form of different parts of the body, for the application of local heat. They possess great advantages over bricks, bottles, and the other means generally resorted to for similar purposes, as

the same measure would, perhaps, prove equally beneficial in cases similar to that which has been just detailed. This remedy, so startling in appearance, is found much less so in practice; for while the system is labouring under severe depression, the degree of inflammation resulting from its use will be found to be comparatively trivial. In one case wherein I employed it, not even the slightest redness or raising of the cuticle followed, although it was applied within fifteen minutes after the commencement of the attack, and the patient survived nearly seven hours.

To many practitioners, most of the views contained in the foregoing observations will appear to have been so long established, and so well understood, that they may be inclined to think the publication of this paper unnecessary. To such I have only to remark, that the instances of the too early employment of venesection after recent accidents, even by medical men, have so frequently presented themselves during and since my residence in the Hospital, that I am induced to believe some good may result from these hints.

The aphorism, which it has been the intention of this paper to establish, is this: *The use of the lancet is never proper, after any severe injury, during the continuance of the collapse of the system.*

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ARTICLE IV.—*Observations on a Change of Climate in Pulmonary Consumption. By* HENRY HUNTT, M. D., of Washington City.

No subject deserves more seriously the consideration of the philanthropist and the physician, than the choice of climate best adapted for the relief of persons labouring under pulmonary disease. Amidst the great improvements in medicine, we have to deplore the neglect of this important subject. Pulmonary consumption, at this time, is the most fatal and destructive disease which afflicts the human race; and its ravages are rendered more peculiarly distressing, as it generally selects the most inte-

they can be easily regulated to any temperature short of the boiling point, and can be preserved, for some time, at the same degree by fresh additions of warm water, without any exposure to the patient. They deserve a place in the medical apparatus of every family.

resting and promising part of creation. When its character is once fully established, it bids defiance, in almost all cases, to the best directed means of the physician, and pursues a sure and determined course, to a fatal termination.

Taking this gloomy and melancholy view of pulmonary consumption in its confirmed state, it becomes the imperious duty of the physician to inquire, minutely and diligently, into its causes; by doing which, he is better qualified ultimately to render essential services to humanity, by discovering the best means of preventing it, or of curing it in its forming state. While investigating these causes, we are irresistibly led to inquire, what are the situations most liable to pulmonary complaints? This is a grave and important question. From the most scrupulous investigation of the subject, we are urged to conclude, that the sea-coast, in all countries, is most liable to this destructive disease. We are aware, that this may be explained, by referring it to the moist atmosphere and sudden changes of temperature peculiar to those situations; and it is true that the great preservative against pulmonary complaints is warmth, and an equal or at least a uniform mild temperature; but if the frequency of this disease on the sea-coast were principally owing to a moist atmosphere and sudden transitions of temperature, why is not pulmonary consumption as prevalent on our great lakes as on the sea-shore? The fact is, that this disease, on the borders of our lakes, is rare, when compared with its ravages on the sea-shore. We must, therefore, look to some other cause for its destructive ravages in the neighbourhood of the sea, besides moisture and sudden changes of temperature, and we feel perfectly satisfied that this cause arises from a *mixture of land and sea-air.*

Professor Rush, that great observer of cause and effect, in his inquiry on pulmonary consumption, observes, that "situations exposed to the sea should be carefully avoided, for it is a singular fact, that, while consumptive persons are benefited by the sea-air when they breathe it on the ocean, they are always injured by that portion of it which they breathe on the sea-shore. To show its influence not only in aggravating but in predisposing to consumptions, and in adding to the mortality of another disease of the lungs, I shall subjoin the following facts. From one-fourth to one-half of the adults who die in Great Britain, Dr. Willan

says, perish with this disease. In Salem, in the state of Massachusetts, which is situated near the sea, and exposed during many months in the year to a moist, east wind, there died in the year 1799, one hundred and sixty persons; fifty-three died of consumption, making nearly one-third of the whole number. Eight more died of lung-fever, probably what was called in Philadelphia the galloping species of that disease. Consumptions are more frequent in Boston, Rhode Island, and New York, from their vicinity to the sea-shore, than they are in Philadelphia. In the neighbourhood of Cape May, which lies near the sea-shore of New Jersey, there are three religious societies, among whom, the influenza prevailed in 1790. Its mortality, under equal circumstances, was in the exact ratio to their vicinity to the sea. The deaths were most numerous in that society which was nearest to it, and least so, in that which was most remote from it. These unfriendly effects of the air in the above pulmonary diseases, do not appear to be produced simply by its moisture. Consumptions are scarcely known in the moist atmosphere which so generally prevails in Lincolnshire in England, and in the inland parts of Holland and Ireland."

Professor Fodere, a learned physician residing in Nice, in speaking of consumption, observes, "it would appear, that there must be on the shores of the Mediterranean some other source of evil, besides mere variability of climate; and I am disposed to look for this in the impregnation of its atmosphere with some of the muriatic salts of the ocean."

Sir Alexander Crichton, late physician to the emperor of Russia, states that "the sea-coast, whatever may be its locality, is highly injurious to phthisical patients, provided there be any breach of continuity in the pulmonary apparatus."

It is admitted that sea-air, when breathed alone, is favourable to pulmonary consumption, and generally allays, or suspends the cough; and it is a remarkable fact, well known to sea-faring men, that old sailors, labouring under a chronic cough, can always anticipate the approach of land by their cough, which becomes aggravated as soon as they breathe this mixture of land and sea-air.

Mr. Poinsett, our distinguished minister in Mexico, who laboured under a chronic cough, observed that his cough, during a

sea voyage, was always suspended, and invariably became aggravated as soon as he reached soundings.

Dr. Rush states that he "crossed the Atlantic ocean in the year 1766, with a sea captain who announced to his passengers the agreeable news, that they were near the British coast, before any discovery had been made of their situation by sounding, or by a change in the colour of the water. Upon asking him upon what he founded his opinion, he said, he had been sneezing, which he added was the sign of an approaching cold, and that in the course of upwards of twenty years he had never made the land without being affected in a similar manner."

These are important facts, and deserve the most serious and deliberate consideration. They plainly show, that there is something in the atmosphere of the neighbourhood of the sea-shore, deleterious to the lungs besides moisture, and sudden changes of temperature. Dr. Parr, in noticing Dr. Rush's suggestion of the disadvantages that may arise from a mixture of land and sea-air, observes, "until these have been found to differ, we may neglect the distinction as an unnecessary refinement." This is certainly a very unphilosophical conclusion, and is unworthy the high reputation of Dr. Parr. The particular states of the atmosphere which cause diseases in different seasons, are totally unknown to the medical profession, and the subject is "wrapt in inexplicable mystery;" sometimes one disease is excited, sometimes another; and would Dr. Parr, or any other person pretend to deny that that these various diseases were produced by some peculiar state of the atmosphere, because they were unable to trace those different changes? This objection then, in the present state of our knowledge, cannot affect the doctrine which we are endeavouring to establish. We will, therefore, discard it, and proceed to give an account of the mortality from consumption in different parts of the country.

In Boston, during the last five years, it is calculated that the mortality from consumption is about one-sixth of all the inhabitants that have died.—In New York, about one-fifth.—In Philadelphia, one-seventh.—In Baltimore, one-seventh.—In Washington, one-eighth.—In Charleston, S. C. one-sixth.

Sullivan's Island is very unfavourable to consumptive invalids. Dr. Richard Randall, late a surgeon in the U. S. army, and now

a resident in this place, who was stationed at different military posts throughout the southern country, states, that to those predisposed to phthisis, the air of Sullivan's Island is highly deleterious in comparison with that of Charleston:—that acute pneumonic inflammation is also more prevalent in the former, than in the latter place:—that the air of the city of Charleston, though otherwise more pure than that of the interior of lower Carolina, is not so well adapted to those predisposed to phthisis:—that the inhabitants of Augusta, Savannah, and New Orleans, though possessing fewer advantages of climate, are less obnoxious to pulmonary affections, than those residing in the otherwise comparatively healthy situations on the sea-board. "Soon after my arrival," says he, "at Sullivan's Island, in 1821, as surgeon to that military post, I thought I discovered a stronger predisposition among the soldiers to pulmonary affections of all kinds, than I had observed at my former stations in the south, and my experience during the succeeding winters confirmed this belief; for the proportion of cases of pneumonia, and of deaths from phthisis, were three-fold greater at this post than at my former stations in the interior of Georgia and Alabama."

The bay of St. Louis, and Passa Christiana are also very unfavourable to pulmonary complaints. Colonel GEORGE GIBSON, of the U. S. army, who was stationed at the latter place during three summers, informed me that Passa Christiana was a great resort for invalids from every description of disease; and it was a remarkable fact, that the consumptive cases survived but a short time after their arrival there; whereas invalids of every other description recovered most rapidly. This fact is totally subversive of the common opinion relative to the cause of pulmonary affections in the neighbourhood of the sea. Passa Christiana is liable to no variety of temperature—its atmosphere is warmed by the Gulph Stream, and is exempt by distance and the intervening forest, from the cold air of the mountains.

It is evident as we recede from the sea-shore, that the cases of pulmonary consumption become diminished. This disease is scarcely known among the Indians of our forest; and in many parts of the interior of the country, consumption is extremely rare; particularly on the borders of Ohio, Mississippi, and Missouri, where bilious intermittent fevers mostly prevail. Colonel

Benton of the U. S. Senate, from Missouri, informed me that the climate of that state was peculiarly favourable to consumptive invalids; and this fact is so notorious, that many persons afflicted with this complaint, have removed their residence to it, in order to prolong their lives. It is not unusual in that climate for consumptive invalids to linger a long time, sometimes ten or fifteen years, whereas near the sea-shore it generally destroys life in a few months.

Pulmonary consumption is very destructive in Great Britain, and the annual victims to its ravages are calculated at fifty-five thousand. Dr. Good states, that in Great Britain, this disease carries off usually about one-fourth of its inhabitants—at Paris about one-fifth, and at Vienna about one-sixth, while it is by no means common in Russia. "It is a singular fact," says he, "and not well accounted for, that of all places which have hitherto been compared, the proportional mortality from consumption appears to have been the greatest at Bristol; and this not among its occasional visiters, but its permanent inhabitants; and yet, as though in defiance of experience, this very place has been chosen as the great resort of consumptive persons."

The south of France, which has been a fashionable resort for consumptive patients for the last sixty years, and was first brought into notice by Dr. Smollet, is perhaps of all others, the most fatal climate to this unfortunate class of invalids. No American, within our recollection, afflicted with this complaint, has ever visited the south of France, who did not fall a sacrifice to its climate. Dr. James Clark of England, influenced by a spirit of inquiry, which does honour to his heart and his profession, visited the south of France, and Italy, bordering on the Mediterranean. From information obtained on the spot, as well from observation as from conversations with the most intelligent and experienced medical gentlemen, he has published a most valuable treatise on the climate of those places, containing more important information than any other work which has ever been written on the same subject; and in which he concludes, that the climate of those places is most fatal to all invalids labouring under pulmonary affections.

Professor Fodere observes, "I have always been astonished that our older physicians should have sent their consumptive pa-

tients to our sea-shores, since it is irrefragably proved, by the experience of our time, that the climate of the shores of the Mediterranean is hurtful to such invalids. At Marseilles, Nice, and Villa Franca, consumption is not, as in Switzerland, on the banks of the Soane, and in Alsace, a chronic disease; on the contrary, I have very often seen it terminate in forty days." Again, he observes, "upon the whole, I consider it as contrary to experience to send patients afflicted with tubercular phthisis to the sea-shore, and yet it is singular that the practice should continue to be persisted in."

Dr. SAMUEL SINCLAIR, surgeon in the British navy, after several years service in the Mediterranean, and especially in the fleet employed off the shores of the south of France, says, "I am the more desirous of making known my own experience in this matter, as I am well convinced that the prevalent opinions respecting it, are most erroneous. So far from coinciding with these opinions, I must declare that I am borne out by the united experience of all my medical friends, who have served in that country, in asserting that the climate of the Mediterranean, more especially at certain seasons of the year, is particularly hostile to phthisical patients, and productive of pulmonary complaints."

Sir A. CRICHTON regrets that patients are still sent to Nice, Naples, and Madeira, all which places are destructive to these unfortunate people. "It is a singular circumstance," says Dr. CLARK, "that while the English practitioners were sending their consumptive patients to the shores of the Mediterranean, our naval medical officers, navigating that sea, were sending theirs to England."

Dr. JAMES JOHNSON, in his valuable treatise on the diseases of tropical climates shows, by comparing pulmonic and other diseases, received into the Hospitals of Minorca, Malta, and Gibraltar, from the Mediterranean fleet, during the years 1810, 11, and 12, that the ratio of pulmonic to other complaints, was one to two and a half. "Out of 455 cases of phthisis alone, 151 died before the remainder could be shipped off for England, where in all probability most of them perished: whereas, out of 1242 cases of fever, only 58 died, and a very small number were invalided. This authentic document will speak volumes on the climate of the Mediterranean."

It is well known to the American officers who have cruised in the Mediterranean sea, that all sailors predisposed to pulmonary consumption, who have visited that sea, have fallen victims to this complaint; and many others, whose constitutions had never before exhibited any signs of pulmonic affections, have been seriously predisposed to the disease by remaining in that climate.

After taking this review of the effects of different climates in pulmonary diseases, we are irresistibly led to conclude, that the United States afford advantages more favourable in this complaint than any other country yet known. Here the consumptive invalid has the advantage of every variety of soil and climate—every facility in travelling—mineral waters that are valuable in diseases of the lungs; and above all, the heart-felt satisfaction of enjoying the sympathy, kindness, and hospitality of his countrymen. Let us therefore abandon this blind and cruel fashion of sending our consumptive patients to the south of France, Italy, and other foreign countries, where it has been incontestibly proven that the climate is a sure passport to the grave.

Pulmonary consumption, unlike most other diseases, makes its approach in the most deceitful and insidious manner. It carries with it a fascinating charm that lulls suspicion, and wraps its victims in the most fatal delusion. It therefore becomes the duty of the physician to act with candour, honesty, and decision: his conduct should admit of no compromise. He should feel compelled by the most sacred obligation, to communicate to the patient, or his friends, the earliest information of the approach of this terrible disease; and to urge in the strongest terms, the importance of a uniform mild temperature, exercise, and a change of air. By such prompt and judicious instructions many thousand lives might probably be saved, which are sacrificed by the tame and palliating conduct of the profession.

The consumptive invalid should always remove as far from the sea as possible, and take as much exercise as is consistent with his strength, particularly *on horse-back:* his diet should be such as is most easily digested—mild and nutricious. High hills or mountains should be carefully avoided; the air of such places is too pure; there, the oxygen gas is too stimulating, and is apt to increase the inflammatory action, to suppress the usual expectoration, and sometimes to produce hæmoptysis. Low grounds, on

the contrary, appear always favourable to consumptive patients; there, the air is of a lower quality, and therefore not so stimulating to the lungs. From experiments which have been made in breathing the hydrocarbonate, and from observation, we are induced to believe, that marshy countries, distant from the sea, where bilious intermittent fevers prevail, are also favourable to consumptive invalids. Places, where animal putrefaction takes place, are generally favourable to weak lungs. There the hydrogen gas which is intermixed with common air, destroys the irritability of the living fibre, subdues inflammatory action, and improves the secretions. Thus it has been related, that a confirmed consumption has been cured by a residence in a coal mine; and that butchers, cat-gut makers, tanners, soap-makers, &c. surrounded by a vapour impregnated with hydrogen, are never liable to pulmonary consumption; and it may be from this cause, that consumptive patients derive benefit from a residence in cow-houses.

The *Red Sulphur Springs* in Virginia have acquired of late, great reputation in pulmonary affections; and from the high and important testimony in favour of these waters, we do not hesitate to recommend them, most earnestly, to the consumptive invalid.

The Red Sulphur Springs are situated in a narrow deep valley, between two mountains running from N. E. to S. W. near Indian creek, a branch of New River, distant about eighteen miles S. W. of Monroe court house.

Doctor GEORGE W. CRUMP, a member of Congress from Virginia, states that he laboured several years under a pulmonary affection, accompanied with hectic fever, profuse perspiration, prostration of muscular strength, great emaciation, and much derangement of the whole alimentary canal. "In this state," says he, "I resorted to the waters of the Red Sulphur Spring, and combined with their use a shock-bath every morning—my diet consisted almost entirely of rye-mush, milk and honey. In the course of a few days, the circulation became more equally distributed, the colliquative sweat was checked, the expectoration became more laudable, and the whole organic economy invigorated. By a persevering use of this plan, for two seasons, I have been entirely relieved from every pulmonic symptom." "The water is extremely cold (for spring water) and is remarkably

transparent and light: it acts principally on the skin and kidneys, and not unfrequently, some aperient medicine is required to prevent constipation of the bowels. In every instance, says Dr. C., which has fallen under my observation, and they were very numerous, it produced a rapid reduction of the pulse."

Doctor HUGER, of Charleston, S. C., was afflicted some years ago with pulmonary disease, and all his friends thought his disease hopeless; in this situation he was advised to visit the Red Sulphur Springs, in Virginia, and from the use of those waters during one season, he was perfectly restored to health. The Doctor states, that he was enabled by the aid of those waters to regulate his pulse almost as he pleased. He is now living in South Carolina, and is one of the healthiest men in that state.

In a letter, dated at the Springs, to a friend, from F. W. GILMER, Esq. Professor of law in the University of Virginia, who was labouring under pulmonary affection, he states, "these waters are as far superior to all others, as those of Ballyspelling were to all others in Ireland. In three hours they allayed my cough so as to take away all that was unpleasant in it. They diffuse a sense of coolness, freshness, and newer life over the whole system. They abate the pulse most rapidly, remove fever, moisten, lubricate, and soften whatever is hard and dry—make one sleep as though he had taken an anodyne—are the safest of all waters, and indeed have no ill quality."

After remaining at the Red Sulphur Springs during the summer, the best winter residence for the consumptive invalid would be in the interior of South Carolina, Georgia, or Alabama. There the soil and climate are peculiarly favourable to such persons during the winter and spring seasons; and the atmosphere, impregnated with the effluvia of the *pine forest*, is highly grateful and advantageous in all pulmonary affections.

In choosing the location for a residence, great caution should be observed in selecting such as is well protected from the north and east winds, and exposed as much as possible, to the warm and cheering influence of the sun.

It affords us much pleasure to inform our readers, that Professor JAMES proposes to furnish some comments on the following interesting communication: but his multiplied engagements, at this season of the year, have prevented their preparation for the present number. The novelty of the case, however, induces us to give it immediate publicity.

ARTICLE V.—*Case of Extra-Uterine Pregnancy*, communicated by Drs. YARDLEY and SANSBURY, to Professor JAMES, of the University of Pennsylvania.

*Philadelphia, Jan. 30th*, 1826.

SIR,—IN compliance with your polite request for us to transmit to our Alma-mater, every thing interesting or important that should occur to us in practice, I shall furnish you with the following particulars of a case which at least possesses some degree of novelty.

On the 12th of December 1825, I was called, in company with my friend Dr. SANSBURY, to see Mrs. G., a delicate female, aged 23 years. Her husband, the messenger who came for me, stated that there was "something coming from his wife, which exactly resembled the hind legs of a large frog." On examination we found the legs and nates of a well formed fœtus, apparently about five months old, projecting from the anus of the mother. By introducing the finger into the vagina, the uterus was found low down in the pelvis and somewhat larger than usual. The os-uteri open, thickened and tender to the touch. The recto-vaginal septum was perfect. We directed the patient to bear down, while moderate extension was made with the nates of the fœtus; it was, however, found impossible to bring it away by these means, for the most excruciating pain was produced by the slightest degree of extractive force. A dose of ol. ricini was next administered, and we left the patient for two hours. On our return, we found that the oil had produced the desired effect, and that the fœtus was expelled with the first dejection. It proved to be a male child, perfect in all its parts with the exception of its back, which was slightly injured by ulceration. Four inches of umbilical cord came away with it.*

I have been able to collect the following facts relative to the

* The preparation has been deposited in the Wistar Museum.

previous history of the case. Mrs. G. has been delivered of two living children, and miscarried in the third month of her second impregnation, owing to an injury which she received while carrying some wood. When her youngest child was about a year old, and while she continued to suckle it, her catamenia appeared and returned regularly till last May. She did not wean her child, until several weeks after the obstruction of the menses and the morning sickness induced her to suppose herself again pregnant During the first four months after the appearance of the signs of utero gestation, her sensations were similar in every respect to those she had felt in her former pregnancies, and the enlargement of her abdomen was perfectly regular. A short time after the expiration of the fourth month, she fell down stairs and hurt herself considerably, especially across the loins. She suffered constant pain and uneasiness in her back and through the lower part of her abdomen, for about forty-eight hours after the fall; she then felt a very painful and singular sensation in her abdomen, which she says "felt like a child turning heels over head in her belly." The pain was so violent as to induce syncope, which continued for some time, and on reviving, she had very severe and regular labour pains, attended by a profuse discharge of blood and water from the vagina. By examining the parietes of her abdomen with the hand, two lumps were very distinctly felt, one on each side, and these appeared to be connected by a thick cord. A physician was immediately sent for, who resorted to remedies to prevent abortion. These relieved the uterine pains, though they did not entirely subdue them; and diminished, though they did not entirely check the discharge. After about a week of severe suffering, she left her bed, and the physician discontinued his visits. She was still, however, in a very uncomfortable condition, having a constant pain in the uterine region, attended with frequent bearing down efforts, and accompanied by a discharge from the vagina, resembling the lochia. The two lumps in her abdomen were still perceptible when she was in a recumbent posture; they had, however, diminished in size, and were very sore to the touch. When she turned in bed, she could distinctly feel something falling from one side to the other. Dr. SANSBURY saw her for the first time in the early part of October, and the following is his account of the case from that period.

"I found Mrs. G. complaining of great pain and tenderness in the hypogastrium, evidently proceeding from the womb, which, owing to the thinness of the integuments, could be easily grasped by the hand, and had the feel of a well contracted uterus immediately after delivery. She also complained of lancinating pains, shooting through the abdomen and down the thighs. She had great pain and difficulty in urinating, together with a sense of weight in the vagina, from which there was a considerable discharge, tinged with blood. Upon examination per vaginam, I discovered the os-uteri to be hard, irregular and knotty; considerable pain was produced by pressure, and the whole uterus appeared to be hard and unyielding. After a deliberate view of the case, I concluded that perhaps she might be mistaken in regard to her pregnancy, and that the case was a scirrhus uteri. Under this impression I put her upon the use of cicuta. She took this remedy for about four weeks with advantage; as, from the examinations which I occasionally made, I found the diseased state of the uterus much improved. She was now able to attend to her domestic concerns, and I became less regular in my visits. About the 20th of November, she had frequent and profuse discharges, from the bowels, of purulent matter, mixed with blood. A dose of oil was administered, which operated freely, and in two or three days, the evacuations from her bowels became perfectly natural, and continued so until the expulsion of the fœtus. A few days before the appearance of this purulent discharge from the bowels, an organized mass was expelled from the vagina, which her mother showed to a physician, who pronounced it to be part of a placenta. Nothing more, worthy of remark, occurred till the 11th of December, when she discovered something unnatural passing from her bowels. I was immediately sent for, and on examination found a substance which had the appearance of a child's foot, projecting about half an inch from the anus; but before I could satisfy myself, it was returned into the rectum by a change in the position of the mother. I immediately introduced my finger, but could discover nothing except a little hardened fœces. I now directed a dose of ol. ricini, which operated, and the next morning brought down the legs and pelvis of a fœtus. In this state of things I requested that my friend Dr. YARDLEY should be sent for, to witness the case."

The fœtus measures eight inches from the heel to the vertex. During its expulsion, the woman complained of excruciating pain, which was much increased by the sharp edges of the bones of the head, which cut through the integuments and wounded the parts through which they passed. The patient complained of great soreness in the rectum for some time after the fœtus was expelled; but her recovery was as rapid as could be expected after such severe suffering, and she now enjoys as good health as has been usual with her. Any further information respecting the case will be cheerfully communicated by your obliged and obedient friend,

THOMAS H. YARDLEY.

To Thomas C. James, M. D.
Professor of Midwifery, &c. &c. in the University of Pennsylvania.

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Article VI.—*On the employment of Leeches in Erysipelas.* By Henry Neill, M. D., Physician to the Lying-in department of the Philadelphia Alms-House Infirmary.

Erysipelas has occasionally been, in my practice, a fatal disease, and generally one over which I thought I had been able to exert a very slight curative influence; appearing rather to run on until it had expended itself, than to be arrested by remedies. But as I have latterly been led to adopt a practice which I think has been more successful, and which not only differs from that heretofore pursued, but is in direct opposition to a generally received opinion, I have thought it my duty to lay the result of my experience before the medical public.

With this view, it is my design to report briefly and faithfully the treatment and result of a few cases, which have been subjected to this remedy.

Case 1st.—In September, 1815, I was called in the evening to visit a young man, about 25 years of age, in Spruce Street, who informed me, that the evening before, he missed his step in crossing the gutter, and had severely sprained his ankle. He was, at the time, suffering very much from pain. On examination, I found the ankle very red and swollen, accompanied with great heat, he

also had a high fever. I directed 16 ounces of blood to be taken from the arm, and 40 leeches to be applied to the ankle; afterwards, a cold poultice, made by wetting crumbs of bread in lead-water.

It was by candle light I made my first visit, and it had not, at that time, the appearance of erysipelatous inflammation; otherwise, I should not probably have directed the application of leeches, being well acquainted with the universal condemnation which that practice had received from the English physicians, and as far as my knowledge extended, also from the American.

At my next visit in the morning, he informed me that he had experienced very great relief from the remedies which had been used, and had slept the latter part of the night very comfortably. On removing the dressing, I was astonished and somewhat alarmed to find the inflamed part covered with vesicles; some containing a limpid, and others a bloody fluid; the character of erysipelatous inflammation being most distinctly marked. The redness and swelling, however, were much reduced, and the pain was very inconsiderable. I directed a saline purge this second day of my attendance, and continued the cold saturnine poultice.

On the next (third) day, I found all inflammation of the skin had disappeared; a plaster of simple cerate was applied, rest enjoined, and in less than one week my attendance terminated. A slight stiffness of the ankle remained, which soon went off. The bites from the leeches which had been applied to the inflamed surface, were not followed by the slightest inconvenience or bad consequence.

Case 2nd.—On the 20th of June, 1822, I was called to see Mrs. ————, in Almond Street. She was a lady about 50 years of age, of full habit, and rather luxurious in her living, being in easy circumstances. She informed me, that she had been costive for several days, had taken medicine, but had failed to procure an evacuation; and from frequent attempts to evacuate the bowels, by straining, the piles, as she supposed, had come on. She was in great pain, and had some fever. I directed 12 ounces of blood to be taken from the arm, the additional exhibition of cathartic medicine, and the application of lead-water to the part affected.

21st. No evacuation had been procured; cathartic medicine continued.

22nd. The bowels had been freely evacuated, but no relief afforded to the pain;—she was still feverish. On examination, I found there were no piles, but considerable erysipelatous inflammation around the anus, and extending on the nates. I directed 50 leeches to be applied to the part, and the lead-water to be continued. The diet consisting of water gruel.

23d. She was quite relieved from pain, and felt very comfortable, but was unable to pass her urine. On examination to day, a small black speck appeared on each of the nates, which increased by the next day to the size of a dollar. I drew off her urine; and, at the suggestion of Dr. T. T. Hewson, who was called in consultation to day, a poultice was applied, consisting of mush, made with a solution of opium instead of simple water.

24th. The gangrene had not increased, the pulse was natural, and she was free from fever. Her diet was improved to light broth, and the poultice continued.

From this time to the 7th of July, I had occasion to draw off the urine twice daily; after which it passed naturally. She was kept on a mild nutritious diet; the poultice was continued for a few days, the slough then separated from the sound part, leaving a healthy suppurating surface. Simple cerate was then applied; granulation and cicatrization soon followed, and in about four weeks from the time of my first visit, she was perfectly restored to health.

This may be considered by some as a case which forbids the use of leeches to the inflamed surface in erysipelas. But when it is recollected to what an extent mortification in this part from this disease, generally runs, and that life is so frequently lost, or greatly endangered, I think it will not be unreasonable to conclude, that inflammation was arrested much sooner than it would have been without this remedy; that the gangrene was not so extensive as it would have been, had the inflammation continued longer, and that her life would have been proportionably more in danger had not these means been employed.

Case 3d.—On the 13th of June, 1824, I was called to see Mr. ———, of Virginia, in Chesnut Street; who was on a visit to the city. He was about thirty-five years of age, in delicate health, having an affection of the liver of two or three years standing. He had undergone two courses of mercury, at periods of a few

months interval; the soreness of his mouth from the last, had just left him when he arrived here. When I first saw him, he complained principally of pain in the heel, which, he supposed, was caused by walking on the pavement, to which he was unaccustomed. He had been confined to the house for two or three days, had been bled, and taken a dose of salts. On inspecting the part, I found erysipelas distinctly marked, extending up the leg. He suffered great pain, and had great sickness of stomach, a hot skin, and continual thirst; the pulse was such as, I thought, forbid the further detraction of blood. I directed the neutral mixture, and the application of lead-water to the part affected, and enjoined a strictly antiphlogistic regimen.

14th. There was no improvement: the inflammation had extended higher up the leg, and the febrile symptoms continued.

He took purgative medicine to-day, and made some changes in the external applications. Rye meal was tried, and, afterwards, a poultice of bread and milk, the surface being wet with laudanum. But at his request, they were all laid aside, and the use of lead-water resumed.

15th. The inflammation still advancing, had got above the knee. I directed fifty leeches to be applied to the upper part of the inflamed surface about the knee. The leecher took the liberty of applying one hundred. I saw my patient shortly after the operation, and found him much exhausted from the loss of blood:—directed a little wine and water, which soon revived him. I had the satisfaction, however, to find the leg was quite pale, the pain had subsided, and I flattered myself, the disease had been conquered. The application of the lead-water was continued.

16th. The limb appeared rather more red and warm. Continued the lead-water, and directed a mercurial purge.

17th. The inflammation had returned, and was advancing up the thigh. Requested a consultation, and Dr. Hewson was called.

His situation was considered extremely critical. After the history of the case was heard, it was agreed that thirty leeches should be again applied to the upper part of the inflamed surface, and a little beyond. It was accordingly done immediately. After the second leeching, the inflammation again disappeared, and the pain subsided. 18th. He was free from all distress, but complained much of debility. A little animal broth was now directed.

The inflammation did not return. Mild tonics were then used; he continued to convalesce; and on the 25th my attendance terminated. About the 30th, he left this city for Virginia; he has since been here, and I learn that he has not had any return of the disease.

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Editorial Remarks.—The treatment of erysipelas by local abstraction of blood, though not of recent origin, is so advantageous, but at the same time so much neglected by the majority of even our best physicians, that we publish, with the liveliest pleasure, the foregoing cases, furnished us by one of the most experienced and judicious practitioners of this city.

The cause of this neglect is not difficult to discover. Until within a few years, the medical publications from the continent of Europe, had but a very limited circulation in this country; and physicians, even in our large and commercial cities, confined their reading to such works as were furnished them by their English brethren. It is not astonishing, therefore, that they should, almost universally, have neglected resorting to leeches in erysipelas; since we find that, with the exception of Dr. Wilson Phillip and a few others, the English writers either do not allude to them at all, or speak of them as of very secondary importance;—condemn them altogether, as liable to exasperate the disease;* or, like Dr. James, avow, that although they have used them with benefit, they have never resorted to them without apprehension, and will not venture to recommend the practice.†

When we cross the channel, however, and examine in what light the same practice is viewed in France, we find that in no part of the world, perhaps, are leeches more extensively used in erysipelas than there; and that no where, have more positive rules, resulting from a wide experience, been given, for their employment in that disease. On this subject, as on many more, the profession are much indebted to M. Broussais, as we do not find that Pinel,‡ Renauldin,§ and other French writers before him,

* B. Bell, Dr. Good, &c. † On Inflammation, p. 252.
‡ Nosographie Philosophique. § Dictionnaire univ. des sciences med.

make mention of leeches in this affection. As we regard the practice as highly advantageous, we have ventured to offer, in this place, a summary account of the practice of Broussais and his disciples, in erysipelas.

In entering on the subject, however, we cannot withhold our opinion, that no slight mischief has accrued, in the treatment of erysipelas, from the wrong views which have long prevailed among us, in respect to its nature. Regarding the inflammation which constitutes this disease, as *sui generis*, or in other words, as one of a *specific kind*, the consequence has been, that too much stress has been laid on the discovery of specific remedies; and the medical world has, for a time, been annoyed with the speculation of writers on the benefit or danger, in its treatment, of not a few articles of the materia medica. We do not intend, on this occasion, to waste our time and limits in showing the fallacy of an opinion, which the progress of pathology, gradually, tends to overthrow; but will merely remark here, that if physicians will consent to view this disease as a common inflammation of the skin, to be treated on the broad principles on which all inflammations are treated, and requiring the common remedies applicable to all inflammations, bearing in mind, at the same time, the connexion, as cause or effect, existing between it and gastric, hepatic, and cerebral irritation, as well as the liability it has, with all superficial and wide extended inflammations, to recede and attack other parts, their practice will become less complicated in erysipelas, as well as safer and less harassing to the patient.

It is precisely in this light, that the school of Broussais views erysipelas; and on these principles they treat it. In mild cases of the idiopathic form of the disease, produced by external causes, unconnected with internal irritation, and in which the skin is the only part affected, Broussais* resorts to simple local astringent applications, as the sugar of lead, decoction of bark, vinegar and water; taking care, at the same time, not to arrest the progress of the inflammation too suddenly, for fear of a metastasis to a more important organ. If the disease be more violent, however, and accompanied, as it usually is, with visceral irritation, emollients must be substituted for the astringent applications; because the repercussion of the cutaneous inflammation might aggravate the

* Leçons du Docteur Broussais, p. 254.

internal disease, which, if violent, must attract the greatest attention. In all these cases, antiphlogistics are the only proper remedies, and among these, leeches will be found of the greatest utility. As in other diseases, their number must be proportioned to the violence of the attack, as well as to the age and strength of the patient.

When the disease, being symptomatic, has appeared some days after the visceral irritation, and this latter is relieved by it, the cutaneous disease must be respected, whilst the principal care of the physician should be directed to the original and more essential complaint. If, however, the erysipelas acquires great intensity, it should be treated, but cautiously, by the means already enumerated; for the simple reason that the violence of the irritation may serve to aggravate, by sympathy, the internal disease. In that species of erysipelas, which, from the inflammation having penetrated to the cellular membrane, is termed phlegmonous, and threatens to terminate in suppuration, gangrene and sloughing of the affected part, the application of leeches is found to be particularly serviceable.

But although the French physicians resort, in the majority of cases, to this method of drawing blood, they do not neglect bleeding from the arm or foot, when the erysipelas is violent and attended with high arterial action, and seated near vital organs; but more especially when complicated with inflammation of internal organs, as of the brain, lungs, &c. &c. Nor do they pay less attention to the part on which the leeches should be applied. Taught by experience that the bite of the animal, on many occasions, produces, itself, an erysipelatous irritation of the skin on which they are placed, and especially when used on the diseased surface, thus aggravating the disease they are intended to remedy, Broussais* almost invariably applies them about two or three inches from the inflamed surface, and in this way derives considerable benefit from the bleeding, without incurring the risk of increasing the original complaint. When the erysipelas, however, spreads extensively, and penetrates deeply, the inconvenience to which we have alluded, should be held as slight, compared to the gangrene and sloughing which threaten the part, and the leeches in con-

* Leçons du Docteur Broussais, p. 248, &c. Annales de la médicine, Phys. 3, p. 352.

sequence must be applied directly over the inflamed membrane. But when thus used, these animals must be scattered over the surface, so as not to attract too great an afflux of blood to one spot.* To this Broussais adds, that the fear of a metastasis should not deter us from using leeches, as it never occurs, when care is taken not to apply any irritant to the digestive organs.†

On several occasions, we have ourselves resorted to leeches in this disease, and have, by observing the rules laid down by Broussais, derived the desired effect. In closing this cursory notice, we shall briefly remark, that guided by the principles we have pointed out, the French physicians have generally succeeded in curing the disease, even in its worst forms, in a very short space of time. They seldom, and we might perhaps be safe in saying, never resort to bark; from which the good sense of our physicians have led them to abstain, notwithstanding the praises that have been bestowed upon it by Bromfield, Hunter, Sir Gilbert Blane, and other English writers. We must add, however, that carrying their fears of emetics and purgatives to, what many would pronounce, an unjustifiable extreme, they seldom torment the stomach and bowels of their patients with these drugs, unless all signs of irritation in these organs have subsided. L.

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Article VII.—*Observations and Experiments on the Action of the Heart. By* John Wiltbank, M. D.

In my inaugural dissertation, published in the Philadelphia Journal of the Medical and Physical Sciences, for February, 1825, were detailed several experiments, performed on *cold-blooded* animals, to ascertain the source of the heart's action. So positive and decided did their results appear, that it was, at that time, deemed unnecessary to repeat or extend them. To afford the reader an idea of their nature, I shall briefly recapitulate the deductions then made.

From these experiments, it was evident, that the action of the heart of these animals, must be perfectly independent of the

* Annales de la méd. Phys. t. 6, p. 246. † Ib. t. 3, p. 352.

whole source of the nervous power; as it was in no way influenced by the destruction or removal of the brain and medulla spinalis. After the destruction of these organs, the heart would, in many instances, continue to pulsate precisely as before the experiment, and even the circulation of the blood was perfectly maintained. In another experiment, we removed the heart with its principal vessels from the thorax; and to ascertain whether its power of propulsion was retained, water was poured into the vena cava, which passed into, and rendered turgid, the auricle. The auricle contracting, the water was driven into the ventricle, whence it was propelled with considerable velocity, through the elevated orifice of the aorta. Still apprehensive of being deceived, the medulla spinalis and brain were completely destroyed, in another experiment, with a red-hot wire; after which, the blood was observed to flow freely, per saltum, from the main artery of one of the posterior limbs, at every contraction of the ventricle.

These experiments seemed perfectly satisfactory and conclusive. But it has since been objected, and with apparent plausibility, that the warm and cold-blooded animals are altogether distinct; and that it would be impossible, from experiments on the one class, to judge of their results upon the other. This objection, however, will not stand the test of examination. It is true that they are distinct and different animals, but this difference consists merely in their organization. In both, the action of the heart, the nervous influence, &c. are, as far as we can possibly determine, precisely the same. A heart, a brain, a spinal marrow and nerves are attributes of both; and these, to all appearance, are in each governed by the same laws, and serve the same purposes; and I do conceive, that if the heart be governed in its action by the medulla spinalis in one class, it should be so in the other:—that if, on the contrary, it be proved, that the heart of a cold blooded animal is indebted for its action to a "vis insita," we are fully warranted in the conclusion, that the same power is productive of a similar effect in warm-blooded animals. In fact, Le Gallois seems to entertain the same opinion, as a short extract from his memoir will show. There is an "exact uniformity of the plan by which the nervous power is organized in all vertebral animals, from man down to the reptile; for it is a curious and very important observation of Mr. Cuvier, that the nerves arise, and distribute them-

selves with exact similarity in all these animals. But," adds he, "the warm-blooded animals are much less suitable than the reptiles for the researches I have just mentioned, because after the section of the medulla, they can only be kept alive by the inflation of the lungs, which prevents their being left to themselves, in order to study their motions; and because, after the partial decapitation, the hemorrhage from the cerebral vessels soon destroys the functions of that portion of the brain which has not been taken off, by stopping the circulation." In another place, he remarks, "that one of the greatest difficulties was to reconcile the facts observed in cold-blooded, with those observed in warm-blooded animals, in the adult state—that fœtuses exhibit a character, very analogous to that of cold-blooded animals. In them, therefore, the bond was to be sought, which would unite the phenomena presented by cold-blooded animals, and the adult mammiferous, submitted to the same experiments." It therefore appears, from Le Gallois' own statements, that cold-blooded animals are decidedly preferable. Reflection also convinced me, that the contradictory results of the experiments hitherto performed, were referrible to the readiness with which warm-blooded animals are affected by slight causes; for we know that a very trivial cause, such as anger, joy, or any emotion of the mind, will affect its action very materially: and to have selected the very tender rabbit for such violent experiments, when more proper animals were so abundant, seems to want explanation. If, however, warm-blooded animals are preferred, let there be some selection. Many of these animals are affected by the most trifling experiments, with great severity, even to the destruction of life—others will suffer but slightly from much more severe measures. Willing, however, to discover the truth, I am ready to grant weight to the objection, which it does not really possess; and shall, with great pleasure, abandon any idea or theory which is unsupported by facts and experiments. If, upon repetition, these experiments should not be confirmed, and prove the doctrine for which I am contending, and others more forcible be adduced in support of an opposite theory, I am ready to make to truth the sacrifice of my own opinion.

It will not, I think, be doubted, from the experiments referred to, that the heart of the cold-blooded animal is indebted for its action, to a power, inherent in itself. With regard to warm-blooded

animals, their nature will not allow such decided results. They bear the destruction of such an important organ as the spinal marrow, very imperfectly; yet the following experiments add strong confirmation to those already performed, and are, I think, perfectly conclusive. The cat, being well calculated for experiments of this nature, and easily obtained, was accordingly preferred. The principal part of these experiments were performed in the presence, and with the assistance, of my friend Dr. O. H. TAYLOR, and of others, who profess themselves willing to vouch for their accuracy and correctness. It may be well to mention, that every experiment that was performed, will be related, so as to preclude the possibility of deception.

*Experiment* 1*st*.—To observe the natural action of the heart, without the destruction of the brain or medulla spinalis, was the first object that demanded our attention. With this view, the following experiment was performed. The cat being secured upon the table, in two minutes the heart was exposed, and its action observed. This was strong and regular, making 130 pulsations in the minute. In three minutes, (always counting from the time the animal was laid on the table,) the pulsations had become irregular and intermittent. In six minutes, the breathing ceased, and sensibility and motion became extinct. The regular and successive action of the auricles and ventricles was now lost, the former making 148, and the latter only 68 pulsations in the minute. In twenty minutes, the pulsations of the auricles were reduced in frequency to 80, and those of the ventricles to 20, in the minute. Nervous twitchings of the pectoral and other muscles, were very evident. The coronary vessels of the heart were slightly injected. The natural action of the heart ceased in thirteen minutes, but it could be excited by irritating the heart with a knife. This organ now became very much distended: a large artery in the thorax was divided, through which blood flowed freely from the heart. The heart was now suffered to remain ten minutes, and upon being again irritated, commenced an irregular and rapid pulsation, which continued for a short time. After having been at rest some time, its action commenced again spontaneously; making in the first quarter of a minute, 12 pulsations; in the second, 10; and in the third, 8. At fifty minutes, the pulsations had become very weak and slow. In fifty-eight minutes, the ac-

tion had apparently ceased; but upon irritating the heart violently, a slight and imperfect action was manifested:—after this it entirely ceased.

*Experiment 2nd.*—In opening the thorax of this cat, the carotid artery was cut, and the blood escaped. The heart was now observed to pulsate slowly and irregularly. The vertebral canal was next opened, and a wire passed through the canal into the head, and the whole source of nervous power destroyed. The heart was observed much distended: one of the auricles being opened, allowed the escape of some blood. The heart now pulsated as before, slowly and irregularly, and in a few minutes entirely ceased.

This one experiment thus proves, that the motion of the heart continues, after the destruction of the medulla spinalis and brain. "But," says Le Gallois, "those motions which still subsist, either after this destruction, or after the heart has been freed from the action of the nervous power in any other manner, are motions without power, and perfectly analagous to the irritable motions observed in the muscles, for a longer or shorter time after death. In the latter," continues he, "those motions only take place, when the muscle or the nerve distributed to it, is directly stimulated; and one stimulus produces only one motion. In the heart, the motions are repeated spontaneously, because the blood it contains is its natural stimulus." From this, it was natural to conclude, that if the heart was removed from the body, and perfectly emptied of its blood, the action ought immediately to cease from the want of its proper stimulus. If it could also be made to appear, that, as in cold-blooded animals, the circulation still continued, the objection would be completely refuted. We therefore continued our experiments as follows:

*Experiment 3d.*—Before this experiment was commenced, the action of the heart was regular, making 104 pulsations in a minute. The medulla spinalis was divided, and a red hot wire passed through the vertebral canal, and into the brain. Sensibility and motion were completely destroyed: the pulsations of the heart were very slow, but were gradually increasing in frequency. The heart, together with the arteries and veins, was distended with blood; and a large artery, upon being divided, discharged blood freely, at the several contractions of the ven-

tricles. The heart was now taken from the thorax, and laid upon the table, after which it continued to pulsate some time. The frequency of its pulsations gradually diminished, and in ten minutes, they had ceased altogether.

*Experiment 4th.*—A cat was laid upon the table, and an opening made into the vertebral canal, near the head. In ten minutes, the wire was thrust through the whole spinal cavity, and into the head. In seventeen minutes, the heart was brought into view, when the contractions of the auricles and ventricles were found regularly to succeed each other. The frequency of the heart's pulsations gradually increased in a regular ratio; being in the first quarter of a minute 18, in the second 24, in the third 32, and in the fourth 44; making the whole number of pulsations in the minute, 118. The coronary vessels were distended with blood; one of which upon being divided, discharged blood at every contraction of the ventricle. From this time, the pulsations of the heart were gradually reduced in frequency, and became irregular. In thirty minutes, the heart was separated from its connexions with the thorax, and divided transversely into two parts. These separated portions continued to pulsate until the fortieth minute: after which, all action ceased.

*Experiment 5th.*—The action of the heart in this animal, before the commencement of the experiment, was observed to be regular, with 96 pulsations in the minute. In three minutes after the animal was laid upon the table, the medulla spinalis and brain had been destroyed by a large wire. In ten minutes, the thorax having been laid open, and the heart exposed, 80 regular pulsations were counted in the minute; they were, however, weaker than before the destruction of the nervous power. One of the carotid arteries was punctured in fourteen minutes, and the blood was observed by all present, (Drs. Taylor, Smith, and myself,) to flow freely from the opening, *per saltum*. In sixteen minutes, the coronary vessels were seen well injected with blood, and the pulsations of the heart, which were now noticed, were regular, and 34 in the minute. In twenty minutes, the pulsations were reduced to 20; in twenty-two minutes, to 16; in twenty-five minutes, to 12; in thirty minutes, to 5, and in thirty-two minutes, to 3 in the minute. These pulsations had now become irregular, but there was still perceived some action. The heart

was now, (thirty-seven minutes from the commencement of the experiment,) removed from the body, and divided into two parts by a horizontal section. Even now, some motion could be excited in the auricles and ventricles, by irritating them with the point of a scalpel. In forty minutes, the motion was still very evident upon irritating the separated portions; but very soon after this, it ceased entirely.

*Experiment 6th.*—The pulsations of the heart of this animal, before the experiment was begun, were 240 in the minute. Four minutes were consumed in destroying the medulla spinalis and brain, and two more in opening the thorax and exposing the heart. The contractions of the auricles and ventricles, which succeeded each other with great regularity, were 120 in the minute. The coronary vessels were beautifully injected, and a small artery which was opened, discharged some blood. In ten minutes, the ventricles had ceased to beat, but the auricles were making 80 contractions in the minute, with great regularity. Spasmodic twitchings were, in this experiment, observed in the diaphragm. One of the pulmonary arteries, upon being emptied of the blood it contained, immediately became again filled, and, upon being divided, bled. In twenty minutes, the contractions of the auricles were regular, and 36 in the minute. In thirty minutes, the right auricle alone continued to pulsate, which it did at the rate of 12 times in the minute. In forty minutes, it pulsated, though very irregularly, 8 times in the minute. In fifty-two minutes, the auricles and ventricles could be made to act by irritation; but in seventy minutes when they were again examined, all motion was at an end.

These experiments are sufficient to remove every objection, and we are again forced to the conclusion, that the vis insita of Haller is the cause of the action of the heart in the warm, as well as in the cold blooded animals. Any other conclusion is impossible, from the direct tenor of all the preceding experiments. But independent of experiments, facts are not wanting, to the support of the theory. We know that in the embryo, the first things capable of being observed, are the brain and the pulsating heart; and that these organs, especially the last, bear a vast preponderancy in size and perfection, to every other part of the fœtus. Now, here it is next to an impossibility, to conceive of the heart deriv-

ing its action and power, so freely and perfectly, from such a small and imperfect organ, as is the medulla spinalis at this period.

Besides, the continuity of the medulla has been known, in several instances, to have suffered an interruption and partial annihilation in the human species, without inconvenience to the action of the heart. The following dissection and examination of the spinal marrow in a case of curved spine, related by Dr. RULLIER, in Magendie's Journal, are very interesting and conclusive. After observing that the brain was very firm and sound, he goes on to state, that "the vertebral marrow, examined with care, in its place and by its posterior face, appeared to us in its natural state, from its origin as far as the fourth pair of cervical nerves. The two inferior thirds of its dorsal part were equally sound; but between these two parts, viz. for about six or seven inches in length, comprised between the two inferior thirds of the cervical region, and the upper third of the dorsal region inclusively, and corresponding to the eighth or ninth pair of nerves, this part displayed a most remarkable alteration: it was soft to such a degree of fluidity, that the canal formed by the dura mater, appeared to be full of a real liquid, which followed the direction of its gravity up or down according to the position of the body; but this liquid, which thus distended the covering of the marrow, stopped precisely at those parts of this organ which remained in their natural state. A small opening being made in the dura mater, immediately let a quantity of this fluid run off: when the membrane had been cut through, the spinal marrow was seen covered with its proper membrane; it was of a reddish-gray, and extremely soft; it presented a sensible fluctuation,* and the opening of its membrane allowed a liquid, mixed with small flakes of medullary matter, to run out. We afterwards made a large opening, and a longitudinal incision in this part of the marrow, which presented to our view, an elongated cavity filled with a sort of grayish light red fluid, in which a great number of red and extremely thin capillary vessels were dispersed." Mr. MAGENDIE makes an important remark on this case, in connexion with the

* The appearance of this part of the marrow was such, that each of the assistants exclaimed, that there was a dropsy in the marrow itself; in effect, the natural colour of the part had disappeared, and was replaced by an almost colourless liquid, in which some flakes of medullary matter were floating.—MAGENDIE.

subject before us. "With regard to the motions of the heart," says he, "the fact of Mr. Rullier is very curious; for after the investigations of Le Gallois, a considerable diminution of the mass of the spinal marrow ought so to diminish the force of contraction in the heart, that the blood would not be able to arrive continually at the lower extremities; and yet the circulation was perfectly maintained."

Two cases deserving attention have also been related by Dr. Olivier. The first of these occurred in a child of eight or nine years of age, in which a complete deficiency of the spinal marrow existed, from the ninth dorsal to the first lumbar vertebra, that is, about four inches. In the other, a girl of thirteen years, at the lower part of the dorsal region, the nervous pulp, reduced to a putrid state, was converted into a pultaceous matter, and was deficient for four or five lines. Dr. Good, in his invaluable treatise on the study of medicine, while speaking of some subject connected with the present, says, "it is well known that the heart, when dissected from the pericardium, has leaped from the table."

In Le Gallois' experiments, also, we could observe that nearly the whole of the spinal marrow might be destroyed, even in the rabbit, without the destruction of the action and power of the heart. This action did not cease, unless a large portion of the spinal marrow was destroyed simultaneously. Indeed, he himself seems to feel the full force of the objection, for he remarks, that "among the difficulties which embarrassed me most, were the differences, sometimes considerable, which I have observed when I wished to determine with some precision, the exact length of the spinal marrow necessary to the maintenance of the circulation. "I proceeded," says he, "as if groping in the dark." And a little further on he says, "after many fruitless efforts to elucidate this dark question, I determined to abandon it, not without regret at having sacrificed so many animals, and lost so much time." So that, reasoning from the experiments of Le Gallois, we should be led to adopt a conclusion, directly contrary to what he would wish.

Dr. Jackson, my friend and preceptor, informed me that in an experiment performed by him on a cat, which was put into a jar containing oxygen gas, the heart pulsated strongly for eleven hours. Now, had not the heart an independent action, it would be

difficult to conceive the cause of the increase of its action in this decisive experiment.

I may, in conclusion, mention a fact which seems to puzzle even LE GALLOIS to explain, or conform to his theory. It is, that many cases are recorded of fœtuses having been born, in whom there existed no brain or medulla spinalis. Several instances of this kind have been related, and LE GALLOIS admits that he knows of two instances, in which we are assured that they have been born alive, without either brain or medulla spinalis. This fact is irresistible, and proves, beyond the possibility of a doubt, that if life and the circulation of the blood can exist without these organs, they are not necessary to the action and propulsive power of the heart. That LE GALLOIS should admit this fact, and afterwards offer as an objection to the vis insita, that fœtuses had been born without a brain, is indeed singular. In reality, every circumstance which he has adduced, can be (especially since the discoveries of Messrs. BELL and MAGENDIE) much more easily explained upon the hypothesis of a vis insita, than upon his own theory, however well supported, in appearance, by experiments and observations.

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ARTICLE VIII.—*Cases Illustrative of the Remedial Effects of Acupuncturation. By* FRANKLIN BACHE, M. D.

From the attention recently bestowed on this revived remedy, both in England and on the continent of Europe, by practitioners of eminence, and from the numerous cases detailed in the foreign Journals of its efficacy, in various affections, I was favourably impressed in regard to its powers, and determined, on the occurrence of a proper opportunity, to give it a fair trial. My situation, as assistant physician to the State Penitentiary in this city, soon afforded me this opportunity; and the cases which I am about to detail, occurred in my practice among the prisoners.

The cases, in which I used acupuncturation, were, for the most part, painful affections, and may be arranged under the four general heads of *Muscular Rheumatism*, *Chronic Pains*, *Neuralgia*, *and Ophthalmia*.

## I. MUSCULAR RHEUMATISM.

CASE 1st. *June* 30, 1825.—J. M. æt. 33, complains of pain in the small of the back, on the left side of the spine, rendered very acute upon flexing or extending the trunk. Acupuncturation being determined on, an attempt was made to insert a needle into the painful part, about two inches from the vertebræ of the loins, and on a line with the spine of the ileum; but in consequence of the patient suddenly receding, from the sharp pain excited by the needle, thereby withdrawing the instrument, it proved unsuccessful. Another needle was then tried, somewhat lower down, and successfully inserted to the depth of half an inch; although, in its passage, it caused a great deal of pain. Upon the patient's starting, in consequence of the acute pain produced by this needle, he perceived that his back was no longer painful on motion. Accordingly, the needle was withdrawn, after having remained half an hour. The patient now tested the state of his back, by motions performed in various directions, and declared that all painful affection was entirely removed; there remaining only a slight sensation of stiffness. An areola was formed round both punctures.

*July* 2.—The morning after the operation, the pain returned, but without half its original force. The patient, to-day, however, has only a sensation of numbness in the back, but no pain.

*Oct.* 26.—The subject of this case states, that the sensation of numbness went off in a few days, and, up to the present moment, he has had no return of pain.

CASE 2nd. *June* 30.—D. G. æt. 43, has been affected for the last two months with a pain in the right shoulder, in the situation of the deltoid muscle. The pain has varied in force at different periods, and is always increased by motion.

A needle was inserted to the depth of an inch, into the substance of the deltoid. At different stages of its introduction, the instrument occasioned very severe pain. After remaining inserted half an hour, the needle was removed; and the patient was very much pleased to find, that the motions of the shoulder, heretofore so painful, could now be performed with facility, the pain experienced being inconsiderable. A remarkable circumstance occurred during the time the needle remained inserted. At four several times, a pain shot, with the velocity of lightning, through the af-

fected part. This was so severe, as to cause the patient to scream out. Observing him attentively, the concussion his frame received, seemed to resemble that produced by a powerful shock of electricity.

In this case, a very faint and small areola was formed. The needle was also surrounded with a slight elevation of the skin, forming a minute button.

*July* 2.—To-day there is no vestige of pain. The patient came to state his recovery.

*Oct.* 26.—Up to the present time, no pain has been experienced; but some stiffness still remains.

Case 3d. *Oct.* 2.—J. B. æt. 39, has been affected, at intervals, for the last four days, with severe pain in the small of the back, inclining to the right side, and running over the hip to the right knee. When it occurs, it is usually the consequence of the motions performed in sitting, and rising from a seat, and is sometimes very severe, producing a sensation as if the hip joint were wrenched. These severer attacks leave a sensation of numbness, extending down to the knee. This patient received an injury in the back about four years before, produced by a fall, the force of which was received on this part; and it is to this circumstance that he attributes the occasional attacks of pain in the back, to which he has ever since been liable.

Four needles were inserted in this case; two nearly in a line, over the right half of the sacrum, the 1st, at the distance of three inches from the spinous processes of that bone, to the depth of three-quarters of an inch,—the 2nd, about an inch from the same processes, to the depth of an inch. The 3d needle was introduced about three inches externally to the 1st, in a line with the great trochanter, to the depth of an inch and a quarter, and the 4th, half way between the 3d and the trochanter, to the depth of an inch and three-quarters. All the needles gave considerable pain at particular moments of their passage, and, except the last, were surrounded with areolæ.

The patient being directed to stand, in order to observe the effect of the operation, the last needle inserted was found to cause much pain, which appeared to arise from the contraction of the muscle, into which it penetrated, throwing the skin into folds on

its upper side. The patient, feeling a little faint, was desired to sit down, and the painful needle was immediately removed, after having remained about ten minutes. Shortly afterwards, the three remaining needles were taken out; the 1st, and 2nd, after having remained about an hour, and the 3d, twenty minutes.

The patient being now directed to ascertain the state of his back, declared that it was perfectly well. The motion of stooping, the performance of which was almost impossible before the operation, can now be performed without the least pain.

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In addition to these cases, I may mention one of stiff neck under this head. The affection had existed for a week, and resisted the use of cups and other topical applications. The least motion of the head occasioned severe pain. The insertion of a single needle caused the pain immediately to disappear.

## II. CHRONIC PAINS.

Case 1st. *June* 14.—F. D. æt. 40, is affected with pains, which have their seat more particularly in the right hip, thigh, and knee, extending sometimes to the ankle. The affection has existed, in a greater or less degree, for a number of years. A trial of acupuncturation being determined on, one needle was inserted into the upper and front part of the thigh, and another, obliquely upwards, into the outside of the upper part of the knee. On the penetration of the first needle, the pain in the thigh was immediately removed, and that of the knee joint, very shortly relieved by the second. The needles produced but little pain at the time of their penetration; but, after remaining for some time, gave rise to a burning and smarting sensation.

*Oct.* 26.—At this date, the pain which remains is very trifling.

Case 2nd. *June* 21.—G. C. C. æt. 55, has been affected, at intervals, for the last four years, with a pain in the top and back part of the head. For the last fifteen months, it has been nearly constant. Cupping and blistering have been frequently resorted to, but only with temporary relief.

A needle was inserted obliquely into the crown of the head, to the depth of an inch and a half. No sooner was the instrument inserted, than the pain in this situation, entirely disappeared. A second needle was then introduced into the back of the neck, and

had the effect of entirely removing the pain in the back of the head, in the course of fifteen minutes. After the lapse of an hour, the patient still continued free from all pain, except a smarting sensation, occasioned by the needle last inserted.

*June* 22.—The needles were withdrawn to-day, after having remained twenty-four hours. The cure still continues complete.

*Oct.* 26.—The pain in this case has never returned up to this date.

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On the 16th of July, the subject of this case, requested me to try acupuncturation for a swelled and painful gland under the jaw, connected with some soreness of the throat on the same side. I readily consented, and the effect of the needle was really surprising. In fifteen minutes, the pain was very much diminished, and at the end of twenty-four hours, at which time the needle was extracted, the pain had entirely subsided, and nothing remained but a slight soreness. In five or six days, the swelling disappeared, and has not returned up to the present time. (Oct. 26.)

No conclusion can be drawn from an isolated case; but if subsequent experience should establish the power of acupuncturation to effect the rapid absorption of enlarged glands, its benefits would be incalculable.

Case 3d. *June* 28.—A. G. æt. 64.—In this case, pains had existed, at intervals, for sixteen years, being seated, for the most part, in the knees, and running up to the hips. This day inserted three needles,—the first, in front of the thigh, two inches above the patella, to the depth of an inch and a quarter; the second, into the inside of the leg, near the knee joint, to the depth of an inch; and the third, over the scapula, one inch deep, for a pain occupying that part. They were all withdrawn after intervals of fifteen or twenty minutes. The first and second needles relieved the pains in their vicinity, in a few minutes after their insertion; the third produced no sensible effect.

*July* 2.—The patient experiences a dull sensation, not amounting to more than one-third of the original pain. The relief continued for about ten days, after which the pain returned. The affection finally disappeared under the use of the volatile tincture of guaiacum.

*Oct.* 26.—None of the original pain remains.

Case 4th. *July* 17.—H. M. æt. 24.—This patient has been affected, for the last four months, with a constant pain over the sternum, about an inch and a half above the ensiform cartilage. Two needles were introduced,—one, in an oblique direction at the seat of pain, to the depth of three-quarters of an inch; the other, one inch below this cartilage, to the depth of one-third of an inch. After remaining about three-quarters of an hour, they were withdrawn. In the course of several days, the painful affection entirely disappeared, and, up to the present time, (Oct. 26,) has not returned.

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I had another case, which may be arranged under this head, in which the patient was affected with pains in both knees, occurring with most severity at night. Two applications of the needles, on successive days, entirely removed the affection.

## III. NEURALGIA.

Case 1st. *July* 18.—J. R. æt. 39, was attacked, the day before, with severe pain in the forehead, thence shooting, through the back of the neck, to the right shoulder, where it became stationary. To-day, a needle was inserted into the shoulder, to the depth of three inches and a quarter. During its passage, the pain was translated to the elbow. In fifteen minutes, however, it returned again to the shoulder. In an hour and a quarter, the needle was withdrawn, without producing any relief.

*July* 19.—Acupuncturation was again tried to-day. A needle was inserted over the deltoid, to the depth of an inch and a half, and removed in about an hour. No benefit, however, was experienced, and the next day, the affection was relieved by cupping, and disappeared in the course of a few days.

Case 2nd. *August* 5.—J. T. æt. 36, has for several years been affected, at intervals, with a pain over the right eye. A needle was inserted into the part affected, to the depth of three-quarters of an inch, and allowed to remain ten hours. The effect was the complete removal of the pain.

The next day, the pain returned partially, but in a few days entirely disappeared.

*Oct.* 26.—No return of pain up to the present date.

Case 3d. *Sept.* 26.—J. H. B. æt. 23, has been affected, for the last six months, with a pain, extending from the right hip, along the back part of the thigh, down to the knee, and occasionally occurring in very severe paroxysms. This day, a needle was inserted into the inner part of the thigh, four inches above the knee, to the depth of one inch, and allowed to remain three hours. Immediately after its insertion, the pain became very severe for the space of five minutes, and produced a disposition to faint; after which, it gradually subsided, and, in a short time, disappeared entirely. At the time the needle was withdrawn, the pain was not felt in the recumbent posture, but was induced, though with less than its original force, upon standing or walking.

*Sept.* 27.—The pain having returned, four needles were this day inserted,—the first in the centre of the gastrocnemius, and the second, third, and fourth, in a longitudinal direction, into the back part of the thigh. After remaining four hours, they became so painful as to require removal. The diseased pain was now found nearly subsided.

*Sept.* 28.—The pain has recurred with nearly its original severity. The patient's impression is, that the needles have afforded him no relief.

*Oct.* 4.—Having been much struck with the result of a case, somewhat similar, in which remarkable relief was obtained from performing the acupunctures on the back, (see case third, under muscular Rheumatism,) I induced this patient to submit to another trial of the needles. Five needles were accordingly inserted; three over the right half of the sacrum, about an inch from its spinous processes, and the fourth and fifth, lower down, in the course of the ischiatic nerve. During the operation, the patient was seized with several excruciating paroxysms of pain, which had the peculiar character of suddenly shifting from the small of the back, to the calf of the leg. Occasionally the pain would subside instantaneously, from a degree of intensity, sufficient to make the patient scream out. A sixth needle was attempted to be inserted over the glutei muscles; but, a severe paroxysm of pain coming on, the attempt was desisted from. At this time, the patient seemed to suffer so severely, that, at his own request, he was allowed to take 60 drops of laudanum. With respect to these paroxysms of pain, it deserves to be mentioned, that they were

precisely similar to those experienced before acupuncturation was resorted to.

About half an hour after their insertion, the two lower needles were removed. Another effort was now made to insert a sixth needle, which succeeded, though not without exciting a great deal of pain. The buttock and upper part of the thigh was observed to be covered with perspiration.

The remaining needles were removed, after having remained in the tissues about three hours. Immediately on their removal, the patient found himself free from pain, arose from bed, and, upon freely exercising his limbs, had no return of it.

*Oct.* 5.—To-day the patient experiences some shooting pains when he attempts to walk, but is perfectly easy when quiet. Three needles were inserted over the sacrum in the morning, and removed in the afternoon. They caused a great deal of pain during their introduction; but at the time of their removal, and for some hours previously, all pain had disappeared.

*Oct.* 6.—Pain this morning very trifling. The patient requesting to have the needles again tried: four needles were inserted in the same region as yesterday. During their penetration, the pains appeared to shoot towards their points. The operation was much less painful than on former occasions. After remaining seven hours, the needles were extracted. The result was, that the pain had disappeared, and was only excited in a slight degree by walking.

*Oct.* 8.—This day the patient had a return of pain, principally seated in the calf of the leg. A needle was inserted into this part to the depth of an inch, with evident relief.

*Oct.* 9.—The needle inserted yesterday was taken out to-day, all pain being absent, except a slight one immediately round the needle.

*Oct.* 10.—The pain having returned to-day, two needles were inserted into the back, and allowed to remain between six and seven hours. During their insertion, the pain was very severe; but after the lapse of half an hour, all painful affection subsided.

*Oct.* 11.—The patient was entirely free from pain all last night, and is equally easy this morning.

Subsequently, the subject of this case had repeated returns of his painful affection, though in a mitigated form. No progressive

improvement having been observed for some time past from the employment of the needles, their further use was abandoned, and recourse was had to other remedies.

It may conduce to give some idea of the obstinacy of this painful affection, to enumerate the different remedies afterwards successively employed. These were, three caustic issues, each of the size of half a dollar, cicuta, carbonate of iron in large doses, exhibited at first alone, and afterwards at the same time with digitalis. During the whole course of the affection, it was found necessary, at various times, to mitigate the sufferings of the patient by a resort to laudanum.

*Dec.* 2.—This patient has been gradually improving for the last three or four weeks, under the use of the carbonate of iron and digitalis, being at present able to attend to his work as a painter and varnisher. Two of the caustic issues are healed, the third nearly so. The affected limb is somewhat smaller than the other, and, from its weakness, gives rise to a slight lameness.

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A case of shooting pain in the back of the head, suffering an exacerbation once in twenty-four hours, may, perhaps, be arranged here. Two applications of the needle produced partial relief only.

## IV. OPHTHALMIA.

I have had two cases of obstinate ophthalmia, in which acupuncturation was resorted to a number of times, with various success. Upon the whole, however, I am strongly inclined to believe, that the needle will be found a valuable remedy in the intense pain, which so frequently accompanies this disease. Its effects were, in many instances, very decided in this way. On one occasion, the irritability of the eye was promptly and remarkably lessened.

While I am thus convinced, that acupuncturation has a decided influence over the pain attendant on inflammations of the eye, I am very far from believing, that, unaided by other means, it will cure these affections. But, at the same time that the usual general and topical remedies are employed, the needles may be resorted to as an important auxiliary.

Besides the foregoing cases, I have had several of minor importance, in which acupuncturation was employed. These were, 1st, a case of headach, occurring in bilious fever, in which the

pain was relieved, but returned the next day with its original violence; 2nd, a case of excruciating pain in the forehead and temples in an epileptic patient, in which the needles had no effect.* 3d, A case of painful elastic tumour, near the elbow joint, the consequence of a sprain, in which the remedy failed; and lastly, a case of dull pain in the side, the consequence of acute pulmonic inflammation, in which the operation produced no permanent benefit.

In the foregoing observations, I have said nothing of the rules to be observed in the introduction of the needle;† as this subject did not come within the scope of my design in writing this paper. But without entering into these details, I may be permitted to remark, that the pain caused by its introduction is not so uniformly slight as some of the French writers would lead us to suppose. It is, indeed, true, that in some cases, perhaps the majority, the pain excited is remarkably moderate; but, on the other hand, in some instances, it is quite severe. Without doubt, the state of the part in which the needle is inserted, must have a great influence in determining the result in this respect.

So far as I can judge from my limited experience, my impression is, that acupuncturation possesses a remarkable power in removing and mitigating pain. This agency, taken in connexion with its safety, and the great facility with which it is performed, points to it as a proper remedy in almost all diseases, whose prominent symptom is pain. I have myself used it in more than twenty cases, and not in a single instance has any unpleasant accident occurred.

In conclusion, it remains for me to acknowledge my obligations to my friend Dr. HARRIS, who kindly assisted me with his advice, and operated for me in several of the first cases, in which I resorted to the remedy.

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POSTSCRIPT.—*March* 8, 1826.—Since the above was written, I have had in the Penitentiary and in private practice, up to the

* In this case, the pain continued to increase, until a state of complete phrenitis was induced, which was combatted successfully by bleeding, cupping, and blisters to the head. Its sequel clearly showed that it was not a proper case for the employment of acupuncturation.

† The reader, who may desire information on this point, is referred to my translation of Dr. MORAND's Memoir on Acupuncturation, recently published in this city.

present date, 17 cases of painful affections of various characters, in which acupuncturation was employed. Seven of the cases were completely cured, seven considerably relieved, and in the remaining three cases, the remedy produced no effect.

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ARTICLE IX.—*Two Cases of Poison, from eating of a Pheasant.*—By N. SHOEMAKER, M. D., one of the Physicians to the Lying-in Department of the Alms-House Infirmary.

IT is a well known fact, that during the winter season, especially when the ground is covered with snow, Pheasants have recourse to the *laurel*, for sustenance, which, although it may be a harmless article to them, is nevertheless known to be an active poison. By thus feeding, their flesh becomes so charged with the deleterious qualities of this vegetable, as to be capable of producing very alarming symptoms, when taken into the human stomach, as the following cases will manifest.

CASE 1st.—On the afternoon of the 14th of the 2nd mo. 1826, I was requested to visit, in haste, the wife of J. D., who was said to have been suddenly attacked, and to be very ill. I immediately obeyed the call, and on arriving at the house, I found her with incessant retching, and complaining of a distressing pain, on the top of the head, which extended down in the direction of the cervical vertebræ, with cold extremities, and pulseless.

Her husband, who is an intelligent man, informed me, that she had dined on a pheasant,—that in about half an hour after dinner, she was seized with sickness of stomach, followed by a temporary blindness, and that he believed she was poisoned.

I desired the servant maid to examine the spot where the bird had been prepared for the spit, to ascertain whether any of the *laurel* could be found. She soon returned, bringing in her hand a considerable number of the fragments of the leaves of this vegetable. This discovery confirmed our suspicions of poison.

Supposing there might still be remaining in the stomach, some portion of the poisonous article, I reflected upon the best method of dislodging it. To administer the common active emetic medicines, where the system was already brought into a state of great prostration from the powerful sedative effect of the poison

on the stomach, appeared to me a practice that would be inadmissible. It occurred to me, that as there was combined with the stimulant qualities of *mustard* an emetic principle, that it was an article peculiarly suited to this case. I accordingly gave her a table-spoonful of the common flour of mustard in some warm water, which increased the efforts of the stomach, without appearing to add to the existing debility. After I was satisfied that nothing more remained in the stomach, from the water being ejected nearly as clear as she drank it, I ordered a large sinapism to be applied to the epigastric region, and smaller ones to the wrists and ankles; gave her a small tea-spoonful of laudanum, with as much ether, and directed warm brandy and water to be given her to drink.

This plan succeeded in putting a stop to the retching; her extremities soon became warm, and her pulse returned at the wrist; but for a considerable time, it beat only *forty-three strokes in a minute.* On calling in the evening I found her comfortable, and able to take a cup of tea.

Case 2nd.—While I was occupied in administering to this patient, my attention was suddenly arrested by a strange noise, which proceeded from a young woman then in the room, and who had been engaged but a moment before, in assisting me. Upon turning to her, I found she looked extremely pale, and was breathing with great difficulty, which appeared to arise from a spasmodic affection of the glottis, which so contracted the aperture, as to occasion, in the act of respiration, the unusual sound which first attracted my attention. She complained of extreme sickness of stomach, which was soon followed with a temporary blindness, and a severe pain down the back of the neck. Her extremities became cold, and the pulse beat only *forty strokes in a minute*, and very feebly.

Being informed that she had eaten of the same pheasant, I had no hesitation in referring the symptoms, she then laboured under, to that cause. I immediately gave her a table-spoonful of the *flour of mustard* in a glass of warm water, which enabled her completely to disgorge her stomach; after which, a dose of laudanum and a little warm brandy and water, effectually relieved her.

## ANALYTICAL REVIEWS.

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ARTICLE X.—*Essai sur les Irritations intermittentes; ou nouvelle théorie des maladies périodiques, fièvres larvées, fièvres pernicieuses, et des fièvres intermittentes en général, exposée suivant la doctrine de* M. BROUSSAIS, *et appuyée d'un grand nombre d' observations.* Par P. J. MONGELLAZ, D. M. P. 2 vols. 8vo. pp. 859. Paris.

IT has often been asserted by those who deny the correctness of the modern pathological views of fevers, that were there no other proofs likely to be alleged against them, intermittents might still be cited triumphantly, as of themselves, sufficient to establish the fallacy of the theory; since irritation and inflammation, on which fevers are maintained to depend, cannot be periodical, but must invariably assume the continued type. Such, indeed, was the general belief, before the commencement of the present century; and it required no ordinary power of mind, and a careful investigation of disease, to overthrow all the prejudices of the schools, and show that, so far from the above being true, irritations and inflammations not only might be, but actually were, often periodical. To establish this position firmly, was an object of considerable moment, as on its correctness rested, in a great measure, that of the views adopted in respect to the pathology of the periodical fevers of nosologists. To Dr. BROUSSAIS we are indebted for this view of the subject; for although a great number of cases of intermittent irritations, could be collected from the writings of physicians of all ages, still they were explained agreeably to the theoretical notions of the day; and recourse was had, on more occasions than one, to the most strange and absurd hypotheses. Physicians were not a little astonished, therefore, when BROUSSAIS laid it down as an axiom, that "morbid irritation may be intermittent in all the organic apparatuses and systems."—(Propos. 218.)

Whatever merit may be attached to this theory of intermittent diseases, it surely commands attention; we shall, therefore, endeavour to lay before our readers, an analysis of the volumes,

of which the title will be found at the head of this article, as we do not find the views of M. Broussais, on this particular point of pathology, so fully, and, we believe, so faithfully embodied, in any other work that has emanated from his school. We must premise, however, that we intend confining our task to the mere labour of analysis, without espousing either side of a question, on which we find such a discrepancy of opinion in Europe and this country. Nor shall we here follow the ordinary custom of merely transcribing a few of the leading passages of the author; thinking, as we do, that a greater service will be rendered to our readers by giving them an essay on the subject, the basis of which we borrow from Mongellaz; using at the same time, some remarks and facts, scattered through the writings of Goupil, Begin, Montfalcon, and Broussais himself.

In entering on this subject, we must remark, that M. Mongellaz, in imitation of Broussais, divides irritations into the inflammatory and hemorrhagic, which are seated in the red capillaries;—into the sub-inflammatory, or that located in the white capillaries;—and finally, into the nervous irritation, which, as its name implies, is seated principally in the nerves. He describes the disease in its different types, as attacking these various parts, and has displayed much research in collecting, from many sources, interesting cases illustrative of the principles he endeavours to establish. Under each of these heads, he first describes the various forms of the disease, as they appear externally, and next proceeds to an examination of the several varieties of irritation, seated in internal organs.

When we peruse the numerous works published on the subject of intermittent diseases anteriorly to the medical regeneration, effected within the last twenty years, we discover nothing but a mass of confusion. A very few words will be sufficient to demonstrate the truth of this assertion. Thus by authors, once distinguished by the pompous title of medical classics, whenever irritation was located in the red capillaries, and attended with a general disturbance of the system, it was included under the general head of intermittent fevers. Of this class, many varieties were formed. In all cases in which the symptoms arose from the lesion of an internal organ, the irritation of which could not be easily detected, they denominated the disease a *simple intermittent*

*fever.* Of this variety are all the intermittent fevers of our country. Whenever the disease was produced by an evident and rapid inflammation, or congestion, or nervous irritation of a well known organ, they gave it the appalling name of *pernicious or malignant intermittent fever.* It was never regarded as an intermittent irritation, attended with general symptoms; but as an intermittent fever, *assuming* the appearance of a hemorrhagic, nervous or inflammatory irritation; and what is still more extraordinary, STRACK, LAUTER, and even ALIBERT, maintained that it sometimes appeared with all the features of a *continued* fever. The work of ALIBERT, which is in the hands of every physician, abounds with cases of *pernicious* fevers, collected from the writings of TORTI, of MORTON, of LAUTER, &c.

Nor were these the only varieties of shape under which intermittent fevers were thought to manifest themselves; for, when the irritation was attended with febrile symptoms, and situated externally, it was denominated a local intermittent fever. Finally, whenever the local irritation was unattended with symptoms of general disturbance—or in other words, whenever it was *apyretic*, the disease was termed a masked intermittent fever, (the larvatæ of some writers,) by which term was understood an intermittent fever without fever—a fever *concealed* under the mask of a hemorrhage, a neuroses, or a phlegmasia, and recurring periodically.

It must appear evident to every one, that some of these views are, to say the least of them, unfounded. They might, perhaps, have suited at an early period of our science, when every disease that was cured by bark, was thought to partake of the nature of an intermittent fever, for which this remedy was deemed the specific; but how they can find advocates at this time, when the doctrine of specific remedies is fast losing ground, and when the study of morbid anatomy has shed so much light on the nature of disease, is not easily to be accounted for. Such views could only arise from the supposition, that intermittent diseases are distinct in their nature from every other disease, deriving their origin from a being, substance, virus, or a something, differing in every way, from every other being, substance, virus, &c. When we endeavour to discover what this can be, we are led, after a laborious search, to conclude that it is nothing more nor less than intermittence, or periodicity itself. Whenever, therefore, this pe-

culiar something penetrates the system, it imprints its periodical morbid characteristic upon it, and, like a true Proteus, can assume every shape imaginable. This is absurd enough, and is surpassed only by the idea of an intermittent fever without fever.

Our author, in imitation of Broussais, regards all the forms of disease to which we have alluded, as local intermittent irritations, either internal or external, and attended with, or free from, a sympathetic disturbance of the system. In the course of this essay, we shall endeavour to lay before our readers, a summary of the arguments and facts by which this opinion is sustained; previously to which, however, we must notice a few of the objections adduced against it.

One of the most extraordinary arguments adduced by the opponents to the periodical character of irritations, and one which to them appears conclusive, is, that they cannot *understand* how an irritation or an inflammation can be intermittent. In answer to this pretended argument, it might be remarked, that we are not better acquainted with any of the phenomena of health or disease, than with those of periodicity, and that yet we regard them as well authenticated facts. Besides, it is difficult to discover, what can justify a physician in denying any phenomenon, for the bare reason that he cannot understand it. Such a mode of reasoning, however, is not found to be always made use of; for we can prove, that even these sceptics are forced to admit the intermittence of irritation without understanding it. Let us take, for example, the phenomena observed every day in gout. Can any individual, in the full possession of his intellect, deny that the irritation of the toe may disappear suddenly, and be translated as suddenly to some other part of the body? Can we *understand* how this metastasis is effected? and must we, merely because we are unable to explain it, deny its occurrence? In all instances of this sort, we see facts; their explanation is another and distinct question; and the impossibility of arriving at this latter, should not authorize us to doubt the occurrence of the facts themselves.

It requires besides, but a superficial examination of what occurs around us, to discover that the intermittent is as much a natural type as the continued; and that the phenomena of periodicity are not something mysterious and extraordinary noticed only in pathology. When we extend our researches to the other sciences, we

readily discover a number of phenomena which assume this type. The astronomer and the naturalist daily notice phenomena, the periodicity of which is well established; and the physiologist cannot fail to remark, that many of the functions of our body are avowedly intermittent. Indeed, if we examine what occurs within us in a state of health, we discover that we are constantly subjected to a kind of periodicity, or alternation of repose and action. A man who enjoys the most vigorous health, is compelled to seek repose, at least in all that regards his functions of relation; for without this intermission of action, these functions would soon lose their activity and energy. If we exercise any one of our organs of sense, it becomes fatigued, and incapable of receiving new impressions. A muscle when long and powerfully contracted, cannot, unless it be allowed some rest, contract any longer. Bichat remarks, that we may substract, during a certain time, the organs of animal life from the laws of periodicity, by multiplying around them causes of excitement; but they finally submit to them, and at a certain period, nothing can arrest their influence. Worn down by continued watching, the soldier sleeps near his cannon; the slave under the rod of his master; and the criminal in the midst of the most excruciating tortures.

The functions of nutrition present us with similar examples of healthy periodicity. We experience appetite at regular periods of the day. We satisfy the calls of nature at stated hours. There are certain functions of depletion, the periodicity of which is well ascertained, and cannot be altered without manifest danger. Menstruation in women, and hemorrhoids in men are familiar examples of this sort. These are facts which cannot be denied, and yet so far, have defied explanation.

But let us take a cursory view of the arguments we may derive from pathology. Every physician who devotes a careful attention to all the modifications of diseases he is called upon to treat, will confess that an irritation of a strictly continued type is a thing of rare occurrence; and that every febrile irritation presents every day, and nearly at the same hour, an exacerbation of its local and sympathetic symptoms. The fevers of nosologists, even such as are called continued, and which evidently depend on local irritation, manifest daily remissions and exacerbations; and we further notice that the symptoms are usually aggravated every other

day. Whenever the exacerbations are preceded by cold, these fevers are called remittents, and assuredly it is not going beyond the bounds of truth to maintain, that between a remission and an intermission there is no difference but in degree. If we can admit, therefore, that an irritation can and does remit, we are at a loss to discover why physicians will refuse to allow that it can intermit;—an intermission being only the total cessation of certain phenomena, of which the remission is the diminution. The one cannot be explained more satisfactorily than the other; and yet the remission of irritation is admitted without the least hesitation by all pathologists. It is well to remark also that the doctrine of critical days is defended, precisely by those who deny the intermittence of irritation. *They* also are those who maintain, that fevers must run their course, and have all a distinct duration. Can they hope to understand how these circumstances occur? All the phenomena we have detailed, should be viewed as facts, and nothing else; and it is of little consequence whether or not we comprehend *how* they are produced. In the present state of our knowledge, no one is justified in denying an evident fact, whatever conclusions may be drawn from it, and however greatly these conclusions may clash with former opinions. Whenever, therefore, we see symptoms which we are convinced, from experience, denote inflammation, irritation, or sub-inflammation, we are compelled, notwithstanding our former prejudices, to acknowledge that these symptoms indicate the existence of these diseases, whether they be continued, remittent, or intermittent.

But this is not a matter of mere speculation—facts may be brought forward to demonstrate the correctness of these positions; for it clearly results from a perusal of the works of Torti, of Morton, of Medicus, of Lauter, of Alibert, and more particularly of our author, that all varieties of nervous, inflammatory, hemorrhagic and sub-inflammatory irritations, whether external or internal, have, at different times, been found to assume the intermittent type. It is true that all these authors, with the exception of Mongellaz, have erred in their opinion concerning the nature of these diseases, and have offered some of the explanations to which we have alluded above. But a more attentive investigation of these diseases —a comparison of their symptoms, with those of the continued type of the same complaint, the nature of which is better known,

will show that these writers were evidently led away from the truth, by their theoretical views; and that the symptoms they described, owed their origin to a local irritation, assuming the intermittent type.

As it would occupy too much of our time to describe all these cases in detail, we must take the liberty of referring to the writers we have just quoted; and now proceed to offer some observations on the pathology of intermittent fevers. All our remarks on the subject will apply equally well to the malignant and to the ordinary forms of these diseases; as we cannot discover any good reason for differing in sentiment with DOUBLE, and many other writers, who maintain that it is very difficult, if not impossible, to distinguish the former from the latter. The causes of these fevers are precisely the same—their symptoms are also similar, and only appear different from their greater violence in the malignant form. By injudicious practice the common intermittent may be transformed into the malignant species,—the first paroxysms of the latter seldom differ, even in degree, from those of the former; and finally, their treatment is the same. We may therefore conclude with FRANÇOIS, (Annales, vol. 7. 26.) that malignant intermittents can only form a distinct class from the others, owing to the violence of the paroxysms, and the predominance of one symptom; or adopt the axiom of BROUSSAIS, that fevers called malignant, differ from the common intermittents, only in the violence and danger of the congestions. (Prop. 225.)

On the subject of the nature and seat of these fevers, much difference of opinion exists. We shall not occupy our time in examining and refuting the opinion of MORTON on the degeneration of the animal spirits, as the cause of these diseases; or that of WILLIS, on the excess and defect of the nervous fluid; or of TORTI, on states of colliquation; or of GRIMAUD, on condensation and spasm, or on expansion and atony. These opinions have long since been consigned to a merited oblivion, and we are not disposed to disturb their quiet slumbers. We cannot allow another opinion to pass by unnoticed, however, supported as it is by the high authorities of BALDINGER, ALIBERT and GIANNINI. These physicians have placed intermittent fevers in the nervous system; the former attributing them to a lesion of the principal faculties of the power of life—the second to a lesion of the sensitive and muscular sys-

tem, whilst GIANNINI thought them to depend on a debility of the nerves. Nothing can appear more vague than such a mode of reasoning. These physicians, as PINEL has well remarked, could only have seen these fevers at their commencement and termination, when the pathological condition of the organs, on which they depend, cannot well be discriminated. That the nervous system is deeply concerned in the general disorder of the system, is doubtless true. But it is similarly affected in all diseases in which the general system is involved. It is, besides, by the nervous system that all disorders commence. But when by the action of a stimulating cause the nervous susceptibility of an organ becomes increased, and, through it, the whole nervous system is disturbed—or when, by a general cause, the nervous system is excited, the irritation, after a very short time, passes from the whole system of nerves to another tissue, where it fixes itself in a special manner, and the disturbance of the system now depends on this local excitement. Were this not the case, the nervous excitement would soon cease,—would die away, from the power of the economy, which tends to re-establish the equilibrium of health in the system, when destroyed by any cause. Diseases, therefore, which commence by a disturbance of the whole system, become, in a short time, to all intents and purposes, local diseases, attended with sympathetic irritations of the brain, heart, &c. There exist no symptoms indicating this exclusive and essential affection of the nervous system in intermittent fevers; so far from this, they all tend to show that the irritation has passed to some other tissue. Aware of this circumstance, many physicians, rejecting the idea advocated by some, that these fevers are essential, consisting of a group of symptoms unconnected with any local or organic derangement—of something affecting the system without affecting the organs, have maintained that they invariably depend on a local irritation, exciting by sympathy the heart and other organs. That this hypothesis is correct, may fairly be presumed from the great analogy existing between these fevers and other complaints, which are well ascertained to depend on a local organic derangement; as well as by an analysis of their causes and symptoms. Let us examine these several points in detail.

A reference to the writings of the authors we have already named, will prove in the most positive manner, that irritations of

the intermittent type, have often appeared *externally*, consequently presenting no difficulty as respects their diagnosis. These irritations consist occasionally of coryza, ophthalmia, phlegmons, erysipelas, and eruptive inflammations in general—rheumatisms, gout, &c. The same reference will show to the unprejudiced mind, that all periodical, local, or masked fevers of authors, are true irritations of the intermittent type.

With these facts before us, less difficulty, we trust, will be experienced in attempting to solve the question which now engages us, than was at first contemplated; for if irritation *can*, and *does* appear externally with the intermittent type, no reason can be alleged for denying that it can assume the same type when seated *internally*. *Probability*, therefore, being in favour of the doctrine we shall endeavour to defend, we may proceed to remark, that when investigated with scrupulous attention, the diseases we have enumerated above, present a great analogy to intermittent fevers so called; allowance being made for the difference of the parts affected, and the degree of the irritation. Nor has this analogy escaped the observations of the older and some of the modern writers; for we find, on examining the writings of Morton, Sydenham, Storck, Van Swieten, Senac, and Alibert, that they regarded all these complaints as being of the same nature. It is true that their explanations of the formation of these diseases were not such as could well be received at the present day—regarding them as a peculiar form under which the Proteus intermittent fever appeared; nevertheless the *unity* of the theory is all we need adopt. But let us examine the subject in another point of view. Each tissue or organ of the human body performs, in health, a different function, and possesses, in consequence, a degree of vitality, and a mode of organization peculiar to itself. It follows, therefore, that when it becomes affected with irritation, it will manifest its sufferings by symptoms somewhat different. Nevertheless, there is, in all diseases of irritation, a family resemblance; characterized by certain symptoms common to all cases, by which they are, with facility, discovered to belong to the same class.

Now it requires no great experience to show, that the symptoms of malignant and common intermittents, are precisely the same as those of continued fevers, and of all local inflammations;

modified only by the nature and functions of the part affected. The only material difference is to be found in their periodicity, which we have already proved, cannot be offered as an objection to their being regarded as depending on irritation. It naturally follows then, that as their symptoms are similar, so the cause of these symptoms must likewise be of the same nature; and that these fevers must arise, like continued fever and other inflammatory diseases, from a local cause; for, agreeably to the true method of philosophising, it is unnecessary to seek for more causes than one to account for the same effect. Analogy proves, therefore, 1st, that intermittents are local diseases, with a general disturbance of the system; and 2nd, that this local disease *may* be an irritation, since there are a great number of local, external and internal, intermittent irritations.

It remains now to inquire whether this view of the subject will be sustained by an examination of the ordinary causes of intermittent fevers.

*Causes.*—The greater number of physicians, of the present day, agree in the opinion, that continued and remittent fevers—the essential and primitive fevers of authors, depend on an organic derangement of some portion of the body. Admitting this to be true, and we are disposed to think it would be difficult to prove it not to be so, every one must have seen cases of what are called continued fevers, become remittent, and these latter change to the intermittent type. The reverse of this has also often been noticed, and has but too frequently been the result of the injudicious and untimely use of stimuli. Intermittents offering but few signs of local irritation, have sometimes changed, without the supervention of any new cause, and by the sole effect of a metastasis, into an evident inflammation of some vital organ. From all these facts, we are naturally led to the conclusion, that all these diseases are of the same nature, or rather that their proximate cause is the same; since it is revolting to imagine that diseases of one nature can change, so rapidly, into another of a different kind. The former depending, therefore, on a local lesion, the latter must also arise from a similar cause. Independently of this, all the predisponent and exciting causes of intermittents will be found to be the same as those of remittent and continued fevers, and of local irritations in general. They all irritate directly or indirect-

ly, the tissues and organs of the body. Let us examine a few of them in detail.

Among the *circumfusa*, we find sudden and great atmospherical vicissitudes,—dampness of the air—exhalations from animal and vegetable substances in a state of putrefaction, and certain gases, produced during chemical processes.

2. Among the *applicata*, we may enumerate damp clothes too long applied to the body—sleeping on the damp ground, or on any cold and damp substance—a shower of rain—a cold bath.

3. Among the *gesta*, sudden changes from exercise to repose—excessive fatigue of body and mind, more particularly at night.

4. Among the *percepta*, are powerful emotions of the mind, especially fear, terror, grief—or the reverse passions, anger, hatred, &c.

5. Among the *ingesta*, irregularity in regimen—too great an indulgence in fermented or alcoholic liquors, spices—aliments of bad quality—unripe fruits—worms, &c.

6. Among the *excreta*, we find derangements in habitual excretions, which are suppressed or in excess—suppression of perspiration, of an eruptive disease, of habitual hemorrhage, or of a drain, &c.

It would be no difficult task, to show, by a careful analysis of the modus operandi of these causes, that they all act by stimulating, directly or indirectly, some of the organs of our body; but as this would occupy too much of our time, we must content ourselves with calling attention to the fact that all these causes produce, in many instances, continued and remittent fevers, and local irritations in general; and that as it is an old axiom, that similar causes must produce similar effects, we are justified in concluding, that malignant and ordinary intermittent fevers arise from a local irritation. In addition to this, we would ask, on what other principle than the present, can we account for the fact, that strictures in the urethra, or the mere passage of a bougie, will occasion frequent and regular paroxysms of fever?

The elder Frank relates a case of quartan fever caused by the irritation, on the gum, of a tooth which had not yet protruded. The fever, after resisting all remedies, disappeared when the tooth pierced its covering membrane.

By analyzing the symptoms of intermittent fevers, we readily

discover, that they are precisely similar to those that accompany all local irritations. This is found to be the case, whether we examine the symptoms attending the first, second, or last stage.

The chill or even the cold creeping, constituting the first stage of an intermittent, is common to every local inflammation; and consequently cannot serve to establish any difference between these diseases. In local inflammations it is sometimes wanting; but there are few physicians who have not occasionally seen intermittents unushered with this symptom.

The increased action of the heart and arteries—the augmented temperature of the skin—the deranged state of the secretions—the altered condition of the intellectual faculties and most of the senses—the pains in the limbs, accompanying the second stage of an intermittent, are precisely such as attend the stage of re-action of every inflammation sufficiently violent to occasion a disturbance of the system. The only difference, therefore, between this stage in these two forms of disease, is to be found in the difference of those symptoms depending on the affection of particular parts.

The third or sweating stage of an intermittent resembles so much the same stage, or termination of most inflammations, that we must regard it as effected in the same way; namely, that it depends, in both cases, on the translation to the exhaling vessels of the skin, of an irritation which was seated internally.

The paroxysm of an intermittent fever differs, therefore, from that of an ordinary inflammation, attended or not with pain, only in the duration. But as mere *duration* never could constitute any difference in the *nature* of diseases, are we not justified in concluding, that if the symptoms we have enumerated, indicate in pleurisy, peritonitis, &c. the existence of a local irritation, they in like manner indicate the same affection in intermittents, though this irritation be not manifested to our senses, in all cases, by pain? But this is most clearly shown to be the case when we direct our attention, in a more particular manner, to the malignant intermittents, as we find the paroxysm of many of these attended with this symptom, (pain) which many physicians think essentially necessary to indicate inflammation. Let us take, for example, that modification of the disease, which, on account of its

prominent symptom, ALIBERT has denominated the *Pleuro-pneumonic*. It must be evident to every one, that the dyspnœa, cough, bloody expectoration, pain in the side, hot skin, frequent and hard pulse, which characterize the paroxysms of this pretended essential fever, denote an inflammatory state of the pleura and parenchymatous structure of the lungs. If they be denied to arise from this condition of these parts, we are really at a loss to ascertain what they will be asserted to depend upon. During the first paroxysm, the most experienced and intelligent practitioner would be led to pronounce the patient affected with a pleuro-pneumonia; the symptoms being in no respect different from those of ordinary cases of that disease. Now if, as in the instance before us, these symptoms, after continuing a few hours, subside, and appear again after an interval of one, two, or three days, it is conclusive, that the disease can be nothing more nor less than a pleuro-pneumonia, assuming the intermittent type.

It is true, that ALIBERT, adopting the sentiment of SENAC, maintains that such local symptoms are very deceptive, and though resembling those of inflammation, do not depend on this affection. The only reason he adduces in favour of this opinion, is the short duration of these symptoms. If it be asked, what these symptoms depend upon? ALIBERT will tell you, that it is the intermittent fever which has thrown itself on the part, already predisposed by constitutional debility. But what is this fever? He will again say, that it is a lesion of the sensitive and motific systems. The deduction is clear. It is the being, called intermittent fever, depending on a lesion of the nervous power of the *whole* system, which has attacked, in the case before us, the respiratory organ, and has produced phenomena there, which, though similar to those of irritation and inflammation, do not depend upon these, but upon something very different from every thing else. An explanation truly philosophical, and as lucid as many doctrines of the present day.

GIANNINI referred these local symptoms, and indeed the hot stage of intermittents, to what he called a neurosthenic state—a compound of asthenia of the nerves and increased excitement of the arteries—a state very distinct from inflammation, and requiring a different treatment. Such a state, however, is the mere product of the imagination; for an excited state of the arteries,

with debility of their nervous power, is revolting to every physiological physician.

Were a physician so sceptical as to demand further proofs, than those already offered, that the disease is of the nature contended for, it will only be necessary to refer him to the results of dissection; for he will then find traces of inflammation and its consequences, similar to those we notice after the continued, or rather remittent form of the same complaints. On this subject, an intelligent writer remarks, "the ontologists will say, that the disease was not an inflammation, but only a congestion. Admitting this to be the case, let them suffer the consequences of this hypothesis. A congestion is always a modification of the organic action of the part affected. Now, as this modification is allowed to be intermittent, we do not see why inflammation, which is another modification of the organic action, will be denied to be intermittent."—GOUPIL, 173. What we have here said on the subject of the *Pleuro-pneumonic*, will apply, with equal propriety, to the other forms of malignant intermittents, described by ALIBERT—as the cardialgic, hepatic, dysenteric, &c.

The displacement or metastasis of these fevers into external irritations, and the re-appearance of the former, when the latter subside or are repelled too suddenly, may be safely adduced as additional evidence in support of the views here maintained.* The writers of the 16th century, attributed all these changes to the translation from the interior to the exterior, or from one part of the body to another, of a morbific humour; and although reasoning on mere assumption, they were entitled to the credit of entertaining a unity of principle, not frequently met with in many physicians of this age; yet, in the present improved state of pathology,

* Such cases have been noticed by BARTHOLIN, JUNCKER, STRACK, GHISI, DUMAS, PINEL, &c. and are, therefore, proved beyond doubt. Nor are these the only instances of a well known irritation alternating with an intermittent fever. Dysentery, diarrhœa, and pulmonary catarrh, have been seen to arrest the progress of the fever, by SYDENHAM, GRANT, LORRY, RÆDERER, WAGLER; and MORTON saw many cases of this fever which were removed by the appearance of rheumatism and gout. BANG, on the contrary, saw intermittent fever put a stop to chronic catarrh, pain in the side, and even incipient phthisis. CARRON saw it remove erysipelas: a case is mentioned by MONGELLAZ, in which the fever alternated with itch; and other cases of this kind might be cited from the writings of numerous authors of the greatest respectability.

it is much more rational to insist, that the appearance of an external inflammation has arrested the progress of the intermittent irritation seated internally; for experience has shown, pretty conclusively, that a disease arrested by an irritation, must also be regarded as itself depending on an irritation. Were this proposition denied, we know of no theory likely to explain, satisfactorily, this translation of disease; and in preference to adopting any hitherto proposed, we would retrograde, though with reluctance, to the theories of coction and concoction.

The majority of authors who have written on intermittent fevers, have placed their seat in the organs in which they discover lesions after death; and it is a fact well authenticated, that these lesions have always been found to be the effects of inflammation. In the description of an epidemic of intermittents, described by Lancisi, we find that dissections revealed evident signs of inflammation, and its consequences, in the abdomen. Dr. Bailly, in his account of the intermittent fevers which he noticed in Rome,* tells us, that they were all characterized by the predominant affection of one organ. After death, marks of disease were invariably found, corresponding with the symptoms which had been manifested during life. It is true, that dissections have not, in every case, revealed these appearances; and this circumstance has been adduced, by the opponents of this doctrine, as militating against its correctness. In the greater number of cases, however, such lesions have been found, and this circumstance should, of itself, be sufficient to carry conviction to the most prejudiced mind. It is a fact, besides, admitted by almost every pathologist, that in diseases which we know to have depended on inflammation, we sometimes discover no traces of this morbid state on dissection, as the sceptic will learn in the writings of Tissot, Morgagni, Bichat, Portal, Pinel, Broussais, not to mention other names. There is another cause, however, which has prevented physicians from attaining a true knowledge of the nature and seat of such diseases; which is, that even in the worst cases, recovery takes place, under a judicious treatment; or death occurs ordinarily during a state of collapse, before re-action has occurred in the system. Nor should we overlook a reason mentioned by Alibert, who remarks, that when a physician loses a patient with

* Archives, vol. 4, p. 215.

such a disease, he does not feel much inclined to dissect him, for fear of discovering, in his organs, some unanswerable proof of the erroneousness of his practice. CHOMEL, (memoires sur les fievres essentielles) and some other physicians of the anti-physiological school, finding it impossible to deny the existence of marks of inflammation after death, confess that between these, and the symptoms observed during life, there is an evident *relation*. But what is this relation? Is this inflammation a cause or an effect of the symptoms? Many are disposed to regard it as the effect. But we are disposed to adopt the sentiment of those who consider it as the cause. 1. Because some of these lesions have evidently existed before the fever; or else they were chronic, and when by some cause or other they have become acute, fever has appeared. 2. Because there is, in general, an evident relation between the intensity of the inflammation and that of the symptoms. 3. Because the local disease being in some cases slight, does not affect the system; but becoming, from some cause or other, aggravated, fever succeeds and continues until the local lesion has been removed, or so far diminished, as no longer to affect the system. 4. Because, agreeably to the sentiment of the older authors, these fevers have been produced by acrid, bilious, or other matters which irritate the first passages; occasioning inflammation and disorganization. Now, in order that these matters should exist, those organs which secrete them, must have been in a state of excitement—consequently, fever, which, agreeably to these authors, existed only after the acrid matter had stimulated the parts, was not the cause of the excitement producing these acrid secretions; therefore, the present view derives support from the early writers, who, though bad theorists, were close observers. 5. Fevers cannot be the cause of inflammation, ulceration, excoriation; for if we analyse the symptoms of these fevers, we find that not one can produce such effects. This has been particularly pointed out by Dr. ROCHE. Some physicians, aware of the absurd consequences to which such a doctrine would lead them, have adopted the idea that the inflammations, noticed after death, were mere accidental complications. That such may be the case, in some instances, no one can deny; for every physician will easily comprehend, that during the progress of an intermittent irritation, seated in one organ or tissue, another part of the body may, from

its sympathetic connexion with the suffering organ, or some new cause, become affected. But in such cases, there always supervene symptoms indicating this new inflammatory complication; whereas, unless we admit that active inflammation may exist in vital organs, without revealing its existence by some symptoms, we must deny the correctness of the opinion we have just noticed; because, in the greatest majority of cases of intermittents, no symptoms, other than those of the fevers themselves, can be pointed out as indicative of this pretended complication. Besides, admitting this to be the case, it would be difficult to discover why this complication should, in the great majority of intermittents, occur in the same part; which we shall presently endeavour to prove to be the fact.

Those who deny that intermittent fevers depend on a local irritation, have adduced in support of their views, the efficacy of Peruvian bark, and of tonics and stimuli in general. Thus it appears to them inexplicable, that remedies of this class, whose effects are to exalt the organic movements of a part, or of the whole system, should be applied advantageously to the treatment of diseases, depending already on an undue increase of these organic movements. But we must repeat here, what we have already said in a former part of this essay, that the mere circumstance of not understanding how, and why, a thing occurs, is not a sufficient reason for denying its existence. That they cannot account for the phenomenon in question, we are ready to admit; nor do we think it more probable, that in the present state of our knowledge, respecting the modus operandi of medicines, any one can pretend to give a satisfactory explanation of it. These physicians should bear in mind, that the nature of a disease, and its treatment, by means of a particular class of remedies, are two different and distinct questions. The one not necessarily implying the other. They are merely facts which we must treasure up, without inquiring whether or not they appear to contradict each other. Besides, the cure of irritations and inflammations by tonics and stimuli is not of very recent origin; and it is very probable that there exist but few physicians, who have not occasionally seen these remedies employed, in such cases, with the most decided success; even when they have applied them to the part affected. The cure of burns, by spirits of turpentine; of gonorrhœa,

by stimulating injections—of conjunctivitis, by astringent applications, and of erysipelas, by blisters, are sufficient and familiar examples of the benefits of this class of agents, in the treatment of irritations.

These observations apply, with propriety, to the cure of intermittents, by tonics and stimuli. We are all aware, that such remedies remove these diseases; but we do not know in what manner they effect this desirable object. But those who oppose the opinion we here endeavour to hold up, should particularly bear in mind, that tonics and stimuli, when used during the paroxysm of an intermittent, uniformly aggravate the symptoms, except in very few and rare cases, in which the stomach and bowels are not implicated; and that they are only beneficial, when employed during a complete apyrexia, and the absence of all gastric irritation. These remedies do not *cure* the disease therefore, but only prevent its return.

Having shown, in the preceding pages, that intermittent fevers depend on a local irritation, we are naturally led to the examination of another question, which must be allowed to be of the utmost importance, in a practical point of view. We allude to the *seat* of that irritation which gives rise to the symptoms of the common periodical fevers of authors. By many physicians, they were regarded as differing widely from fevers of another type; but as early as the first edition of his Nosographie Philosophique, PINEL classed them with continued and remittent fevers, regarding them as of the same nature as these, and differing only in respect to type. This was a most judicious idea, and we are now sometimes at a loss to account for the fact, that physicians could have entertained a different sentiment. On this point, therefore, PINEL rendered a great service to the science, and is entitled to great credit for it. It resulted, then, as a natural consequence from the preceding view on this subject, that as soon as the continued and remittent fevers were shown to depend on an inflammatory irritation of the mucous coat of the stomach and bowels, intermittents would also be found to arise from a similar cause. The phenomena of their periodicity are not a sufficient argument against this hypothesis, since we have shown that periodical fevers depend on local irritation. Hence, after considerable experience and long reflection, BROUSSAIS advanced the opinion, that

intermittent fevers are cases of periodical gastro-enteritis, but that the brain and other viscera are sympathetically irritated in the same manner as in continued fevers, and may also become the principal seat of irritation and inflammation, either periodical or continued.* (Prop. 222.)

But independently of the reason, for regarding intermittent fevers as cases of gastro-enteritis, derived from their analogy to continued fevers, we shall find the opinion fully sustained by an examination of the causes of these fevers,—by an analysis of their symptoms,—as well as by a reference to the opinion of authors who have almost unanimously, though unconsciously, placed their

* It must not be imagined, however, that we consider BROUSSAIS as the first to proclaim that the intermittent fevers of nosologists, depend on irritation of the stomach and bowels. We are perfectly aware that by F. HOFFMAN, quotidian, tertian, bilious, choleric, and low pestilential fevers, as well as the fever of Hungary, and typhus, were referred to an inflammation of the lining membrane of the alimentary canal, and more particularly, of the curvature of the duodenum. By CASIMIR MEDICUS nearly the same opinion was held, in relation to intermittents. PINEL also must be regarded as admitting unconsciously a similar theory, of at least some of these fevers; for regarding bilious and nervous fevers, which, however, he classed among his *essential diseases*, as depending on gastric and intestinal irritation, and holding that intermittents do not differ from the continued fevers, it naturally follows, that although he does not express it in decided terms, he admitted the gastro-enteritic nature of the former. Granting all this, however, we are not sure that BROUSSAIS is the less entitled to credit for his researches into the pathology of intermittents—1st, because we are not aware that any one before him proved so satisfactorily, that inflammation may assume the intermittent type; 2nd, because the theories of HOFFMAN and MEDICUS were entirely neglected, and the indirect testimony of PINEL either overlooked or warmly opposed; and 3d, because he has developed the theory through all its ramifications, and in a more satisfactory manner than any of his predecessors.

Not long after BROUSSAIS had offered his opinion respecting the nature and seat of intermittents, many physicians, admitting that these depended on local irritation, endeavoured to prove that this irritation should not be regarded as invariably located in the gastro-enteritic system. Thus Dr. JOURDAIN attempted to prove that the kidneys were in the greater majority of cases the seat of the disease, and the gastric system seldom primarily affected. Dr. AUDOUARD imagined that he had solved the problem, and boldly asserted, that the spleen was the part principally affected; and Dr. RAYER (Dictionnaire de Medicine, tome 12) after endeavouring to refute the sentiments of BROUSSAIS, maintains, that the intermittent irritation, giving rise to the fever in question, is seated in some part of the cerebro-spinal system; and that the gastric and intestinal disease should be viewed only as an accidental complication.

seat in the alimentary canal. This opinion will be still more satisfactorily proved by referring to the effects of the treatment, and to the results of dissection.

The greater number of causes assigned by authors as capable of producing intermittent fevers, act by stimulating the stomach and bowels, either directly or indirectly. Having, in a preceding part of this essay, enumerated these causes, it is unnecessary to repeat them here. BARTHOLIN, FORESTUS, POLLINI, RŒDERER, and many other writers, have witnessed cases of intermittent fevers occasioned by the irritation of worms. FRANK relates from SHMACK a case of the disease occasioned by swallowing a piece of lard. It resisted, for a long time, the use of bark, and gave way as soon as the lard was expelled from the stomach.

FRANK himself knew of a similar case occasioned by a piece of mushroom; and not many years ago, a case was noticed by the writer of this article, in which five or six paroxysms of the fever were occasioned by the irritation produced, on the mucous surface of the intestines, by a peach stone. Now, it might be inquired of the defenders of essential fevers, whether these substances could bring on one of these fevers, and in what manner this was effected? As regards ourselves, until these questions be answered satisfactorily, we shall continue firm in the belief, that the fever in these cases, could only be the effect of a local irritation of the alimentary canal, occasioned by the above mentioned substances.

In respect to the symptoms of intermittent fevers, it will only be necessary to remark, that the thirst, redness of the tongue, aversion to warm stimulating, and the pleasure derived from cooling drinks,—the loss of appetite, nausea, vomiting, and pain in the stomach, which accompany the paroxysms of almost every case of intermittent fever, sufficiently indicate, that the stomach and bowels are in a state of irritation. If this position be denied, we are at a loss to understand to what organic change these symptoms will be referred. It is true, that all these signs do not appear in every case, and that in some instances they are even *all* wanting. But there generally exist a sufficient number of them to indicate the irritation of the mucous membrane of the organs already mentioned—and their absence only occurs in a small number of cases, and clearly points out, that these organs are not affected. In these latter cases, besides, symptoms which show that

some other part is irritated, are always present; from which it results that they cannot be offered in opposition to the present doctrine.

We have said that the greater number of physicians have placed the seat of intermittent fevers in the digestive organs; this assertion could be proved to be well founded, by a reference to the works of the Father of medicine, of Diocles, Galen, Celsus, Fernelius, Ballonius, Bartholin, Stalh, and of almost every other author, down to Tissot, and the latest pathologists. It is true that most of these writers referred their seat there in a very vague manner, and involved this opinion, founded on close observation, in all the jargon of the times in which they successively flourished—talking, at one period, of the influence of pituitous matter; at another, of acrid humours. But it is nevertheless true, that by abstracting from our mind this vile nonsense, we easily perceive that by the spirit of observation, which prevailed formerly and has given way to metaphysical speculation on essences, the early writers were led to discover the influence of gastro-enteritic irritations in the production of intermittents.

As respects the proof derived from the treatment, it must be remarked, that antiphlogistics are, and have always been, regarded as the most appropriate remedies; and that the nearer they are applied to the part affected, the greater is the benefit derived from their use. This is not mere speculation, as may be found by any one who will take the trouble of testing the practice himself, or perusing, without prejudice, the Medical Journals which issue monthly from the European presses. In these he will find that not a few cases are on record, in which the symptoms have given way to leeches applied to the epigastrium, or abdomen, without the necessity, in all cases, of recurring to bark. We all know, besides, that this remedy, when administered during the paroxysm, or even during an incomplete apyrexia, when some of the symptoms we have enumerated above continue, produces, usually, the greatest mischief. It is only serviceable when all signs of gastric and intestinal irritation have been removed by antiphlogistics. The practice of giving emetics and cathartics, cannot be adduced against this present theory. 1st, Because these remedies are more effectually employed during the apyrexia. 2nd, Because those who administer them during the fever, expe-

rience, generally, more relapses than others. Besides, the revulsion to the emunctories produced by emetics, and the fluids evacuated by purgative substances, do away, in a great measure, the danger that would attend the exhibition of a mere irritant.

The results of dissections may also be brought forward in proof of the doctrine we have here endeavoured to support; for in examining the reports of Bonetus, Lieutaud, Spigelius, Ballonius, Fernelius, Lancisi, Morgagni, Hoffman, De Haen, and of almost every ancient or modern writer who has dissected individuals carried off by intermittents, we discover that they have, in almost every instance, found in the stomach, intestines, or annexed organs, traces of inflammation or its consequences.

Before leaving this part of our subject, however, we must repeat that as a continued fever may arise from the irritation of any organ of the human body, so an intermittent fever may also depend on the irritation of any other organ. But in the majority of even these cases, the mucous membrane of the stomach and bowels becomes affected. When it does not, the absence of this irritation may easily be inferred from that of some or all of the symptoms we have enumerated as indicating gastro-enteritic irritation.

In bringing this article to a close, we beg leave to remark, that whether this doctrine of intermittent diseases be admitted or not by the generality of our readers, it does not appear to us so unphilosophical and *dangerous* as some, who do not understand it, and have never taken the trouble to study the doctrine of Broussais, are in the habit of publicly pronouncing it to be. The proper end of every theory is to lead to a correct and safe practice. Now we must insist, notwithstanding bold and groundless assertions to the contrary, that by adopting the views of our author, we shall be able to treat our patients better, and more to their comfort. The object in an intermittent fever is to get a perfect apyrexia, which cannot be better accomplished than by the antiphlogistic plan. But we must remark to those who are so readily alarmed at the mere mention of inflammation and antiphlogistics, that it does not follow, because a disease depends on inflammation, that we must bleed by gallons. So far from this, it could be shown to them that most intermittents, although depending on this condition of the organs, may be, and are often, cured by mild antiphlogistics during the fever, and tonics during a complete apyrexia.

ARTICLE XI.—*Anatomie Pathologique. Dernier cours de* XAVIER BICHAT, *d' apres un manuscrit autographe, de* P. A. BECLARD; *avec une notice sur la vie et les travaux de* BICHAT, par F. G. BOISSEAU, membre des Acad. &c. A. Paris, 1825.

THE principal interest which will be felt in this work, will arise from viewing it as a relic of the illustrious genius whose name it bears; as well as of the more recent, but highly distinguished hand that copied it.

Newer, and more improved, as well as more extended works have arisen on the same subject; and at a time, when the light of science rests with such peculiar effulgence upon the arcana of morbid anatomy, as it does at the present day, it is of little moment to analyse the book before us. It is a highly abridged outline of morbid anatomy, arranged according to the anatomical systems of BICHAT, which have formed, since his death, the foundation of most of the modern French doctrines. It is, in fact, little more than an extension of the last section of each chapter of the *Anatomie Générale*.

Somebody has said, we believe in the Edinburgh Review, that every new book should contain, at least, one new idea, amplified, explained, and illustrated as the author pleases, but at least, having novelty for its basis. Something like this may be traced in the life and writings of BICHAT. Led, most probably in search of originality, to write a treatise on the membranes, he caught, what the French impressively call, *une idee mere*, or what in our own tongue, by a somewhat similar figure, is termed *a pregnant idea*. He observed, that not only was the human body divided into complex organs, but that the materials of which these were composed, were extended more or less generally throughout the body, entering into the composition of its various parts, but preserving a very great similarity, and in many cases, an identity of appearance, structure, office, vital and mechanical properties, and diseases. What he first observed of the mucous and serous membranes, he soon applied to the whole system; and thus arose the interesting fabric of his new Science of General Anatomy.

This thought was, indeed, the parent of many others; "the fruitful mother of a hundred more."

In studying the various applications of this principle, BICHAT was

led to unravel the animal economy, in a mode entirely different from any which had been practised before. Mr. CHARLES BELL has complained, that he does not so much give us new facts, as "hold up old ones by the wrong end." The self-satisfaction which this dictum evinces, will probably be offended by beholding the many very important results which have arisen from this "new manner of viewing these subjects." First, modern writers have been led to make many new and important, though frequently minute, observations on the vital properties of different parts of the body; many of which remarks have since proved of practical utility in medicine. Again, it was particularly found that parts of similar structure, possessed a very considerable similarity in many of their diseases; and, in numerous instances, sympathized with each other so far, that the existence of morbid action in one part, was peculiarly liable to reproduce it in another. Perhaps, however, the benefit of BICHAT'S mode of analysis, was nowhere so conspicuous, as in the *membranes*, the point at which he began. In the discovery that it was not only possible, but a thing of very frequent occurrence, for one of the two surfaces of a hollow viscus, such as the stomach, to be affected with disease, while the other remained uninjured, he opened to his successors a wide door for future investigations and triumphs. To this principle we owe a large portion of the researches which LAENNEC and BROUSSAIS, and the whole host of less celebrated names of the Parisian school, have since laid before the public. We do not now stop to enumerate any of the relations possessed by the arrangement of our illustrious authors with the discoveries and opinion of subsequent times. They are to be found expressed, or taken for granted, in all the works on pathology or morbid anatomy, with which we are now supplied. Hence it is that the name of BICHAT has become "familiar in our mouths, as household words;" and is frequently pronounced in situations where his works have never penetrated.

The illustrious author of the remnant before us, published a posthumous volume of the Surgical Journal of the great DESAULT; delivered lectures on anatomy, physiology, diseases of the bones, and surgical operations; published the surgical works of DESAULT; founded the Medical Society of Emulation; wrote essays for their transactions, enriched with many original observations in anatomy; wrote his Treatise on the Membranes, the Researches into Life

and Death, and the Anatomie Generale; opened an immense number of bodies, and delivered courses of morbid anatomy, designed to afford a basis for an invariable classification of diseases. And all this was done before his early death, at thirty years of age. To use the language of CORVISART, "there is no one who, in so little time, has done so much and done it so well."

The copy, from which the work before us was printed, was found among the manuscript papers of BECLARD, of whose death we have heard, within the last year. It is said to have been copied out by the eminent owner, in his own hand writing; but is dated at a period when BECLARD was not attending the lectures. It is thus not brought forward under the responsibility of the last named teacher; but appears to have been obtained by him from some one on whose fidelity he thought he could rely. It is a set of notes, of a very brief description, of the last course which the great author ever delivered. It is of course, though a little polished by the editor, M. BOISSEAU, still in a very imperfect condition, and would probably not have been presented to the press, but for the renown of its author. At the same time, it is proper to remark, that it is about as copious as the work of Dr. BAILLIE, which is acknowledged to be the best we have in our own language, except translations.

Our author begins by dividing diseases into *general* and *local*; including among the former the greater number of fevers. These, he tells us, consist in a general disturbance of the system, in most cases, without leaving any injury of a particular organ visible after death. Hence he derives the uncertainty of our knowledge upon these diseases. This, then, fixes the date of the present doctrine, that fever is a *gastro-enteritis*. We find, however, and we presume that this is what gave the first hint to BROUSSAIS, that *embarras gastrique*, which we suppose may be translated "foulness of the stomach," or "biliousness," is set down by our author, without hesitation, as a mucous inflammation, a true catarrh of the stomach. As the modern writers acknowledge their obligations to BICHAT, it is highly probable that this is the finger-post which directed them their way. Like COLUMBUS, when he had reached America, his time and his life were not long enough to explore the whole extent of the world he had dis-

covered. He made known the *islands*, the continent was left for BROUSSAIS.

After some general remarks upon opening bodies, and upon the mode of studying the subject, we have, first a chapter upon the alterations of the fluids,—rather meagre we must confess. Then follow diseases of the serous membranes. The subjects enumerated, are inflammation of the serous membranes, acute and chronic, miliary eruptions on them, spots and ossifications, and sympathetic affections, and then an account of the diseased appearances of the different membranes, successively considered. On arachnoid inflammation there is little said. Next are diseases of the mucous membrane; considering, first, inflammation, hemorrhage, aphthæ and fungus, and then the particular membranes and their parts. We have already adverted to mucous inflammation of the stomach. Next comes the cellular tissue; next the lungs. The necessity of introducing the last named viscus altogether, although to the interruption of the regular series of tissues, is felt and acknowledged. Whether this or some other circumstance be the cause, we cannot tell; but the diseases of the lungs are crowded into twenty-two pages. M. LAENNEC has since shown that the application of BICHAT'S doctrines to these organs, well deserved a more ample extension.

We next have diseases of the glands, with an enumeration; then those of the skin, including burns; then of the muscles of organic life; then of those of animal life; of the arterial, venous and nervous systems; the latter also, occupying just twenty-two pages; of the absorbent, fibrous, synovial, cartilaginous, medullary, bony, hairy, and epidermoid tissues. Such is the outline of this set of notes of BICHAT'S last and fullest course of lectures on morbid anatomy. We do not know that the work is well adapted to be republished in the United States; as it has proved the basis of an immense superstructure. But of what kind were the materials for that erection, will always be matter of the deepest interest to all who watch the progress of the human mind, and all who apply its labours, with reflection, to the practice of medicine.

ARTICLE XII.—*An Attempt to Establish the First Principles of Chemistry by Experiment.*—By THOMAS THOMSON, M. D., Regius Professor of Chemistry in the University of Glasgow. F. R. S. London and Edinburgh, &c. &c. Two volumes.—London, 1825; pp. 1010.

The work, of which we propose to give an analysis in the present article, is principally occupied in experimental researches, with a view to determine, with greater accuracy than has hitherto been attained, the combining ratios of chemical substances. Ever since it had been shown, that the weights, in which bodies combine in the lowest terms, are *reciprocating* ratios, chemists have been intent to affix to each simple and compound substance, its combining number; that is, a number expressive of its ratio of combination with all other substances, taking these also at their combining numbers. In the progress of the inquiry, the curious observation was made by Dr. Prout, which appears to hold in a majority of instances, that all the larger combining numbers are multiples by a whole number of the smallest.

It can hardly be necessary to inform the reader, that, on this general fact of the reciprocity of combining ratios, where different substances are concerned, and on the multiple property of the successive proportions, in which one substance is sometimes found capable of combining with another,—the beautiful and important theory of atomic combination is founded. A large portion of the chemists of the present day, adopting this theory, consider the combining numbers as representing the relative weights of the integrant particles of the bodies, to which they belong, and hence call them the weights of their atoms respectively. Other chemists, however, equally satisfied with the atomic theory, as an hypothesis connecting all the observed facts of combination, prefer to call the combining numbers, *equivalent numbers*, *proportionals*, *representative numbers*, &c.

Prior to the appearance of the work before us, the atomic numbers, or chemical equivalents of a great number of simple and compound bodies had been determined with every appearance of accuracy. The reciprocating property of the numbers being fully understood, the analytic chemist availed himself of it, to determine, with almost unerring certainty, the correctness of his analy-

ses. When the atomic number, obtained for any substance investigated, proved to be the same, as deduced from its combinations with the best known substances, confidence was reposed in its correctness; when different numbers were brought out, the experimentalist was certain that some error had crept into his results.

In addition to the light, shed on analytic chemistry generally by the facts above stated, the analysis of aëriform substances became greatly facilitated, in consequence of some important observations, made by GAY-LUSSAC in 1809, on the ratios of the bulks or volumes in which gaseous matter combines. This great chemist proved, that in all the instances of gaseous combination, examined by him, the ratio is a very simple one; that, for the most part, one volume of one gas combines either with one volume, with two volumes, or with half a volume of another gas. He also showed, what indeed might have been deduced as a corollary from multiple proportions by weight, that, where the same gas enters into combination in several proportions with another gas, the volumes representing the higher proportions are multiples, by a whole number, of the volume representing the lowest.

Since the *combining weights*, or *atomic numbers* are reciprocating ratios, it is easy to perceive, that the ratios by volume, or *combining volumes*, become necessarily reciprocating ratios also. But it by no means follows, from the multiple property of the atomic numbers amongst themselves, that the numbers representing *combining volumes* should likewise possess that property. These latter numbers, however, as an independent fact, do possess it; but they differ from the atomic numbers in being very few, in consequence of the same numerical expression denoting the combining volume of many gases at the same time.

There being, therefore, a series of equivalent numbers for the gases, expressive of *combining volumes*, and another series expressive of their *combining weights*, it is evident, that the two series must be equivalent to each other, as representing the *same* quantities of the various gases, considered severally under the two relations of bulk and weight. The series of numbers representing combining volumes being well made out, by the aid of the law of GAY-LUSSAC, which proved the simplicity and multiple character of the ratios, it became comparatively easy to analyse

the gases, by *measuring* their constituents, and converting the numbers by bulk, into the correspondent numbers by weight.

The laws of combination both by weight and volume being so fully developed before the present work appeared, it is easy to perceive, that Dr. THOMSON came to the task, which he has imposed upon himself, of ascertaining with greater precision the combining ratios of bodies, with the leading principles connected with the subject, already determined by the labours of cotemporary chemists.

The work before us commences with an historical introduction, in which the successive labours of chemists, which resulted in the establishment of the present theory of chemical proportions, appear to be concisely and fairly stated. In it, Dr. THOMSON speaks with proper emphasis of the important observation, first made by WENZEL in 1777, that neutral salts preserve their neutrality after mutually decomposing each other; the reason of which is now known to be, the reciprocating property of the combining ratios. The same fact was enunciated in another form by WENZEL, when he stated, that whatever series of numbers represents the quantities, in which the alkalies combine with any particular acid, numbers having the same ratios, represent the combining quantities of the same alkalies with all other acids.

We mention the observations of WENZEL thus particularly; because it would appear, that Dr. THOMSON has availed himself, in his analytic researches, to a very considerable extent, of the general fact of neutrality after double decomposition. So far as we know, Dr. THOMSON is the only chemist that has made extensive use of this principle, in testing the accuracy of analyses, or, to speak more specifically, of equivalent numbers. If, for example, the equivalent numbers of two salts, which mutually decompose each other with precipitation, have been determined by independent analyses; then, upon mixing them in a state of solution, in equivalent quantities, the accuracy of such numbers is put to a very delicate test. If the numbers be accurate, neither ingredient of the precipitate will be found in solution; if inaccurate, the supernatant liquid will contain one or other constituent of it. Now as many precipitable substances may be de-

tected to the 100,000th part of the solution in which they are held, this method of proof, so ingeniously applied by Dr. Thomson, furnishes the means of detecting the most minute inaccuracy.

In respect to the combining ratios, a subject arises incidentally, which is noticed by Dr. Thomson; namely, what are the best numbers in which to express them. Two sets of numbers are in use; one set deduced from oxygen as unity; the other, from hydrogen. Dr. Thomson declares in favour of the former scale of numbers, and gives several reasons for his preference; while he objects to the hydrogen unit on several grounds. In the first place, he conceives, that, as the atomic weight of hydrogen is difficult to determine, it is improper to make it the basis of the ratios; since any alteration in it from future experiments will change the numbers of all other bodies. Thus, it is stated, that, by Berzelius, the quantity of hydrogen, combining with oxygen to form water, is supposed to comprise two atoms; while, by the great majority of chemists, the same quantity is considered to represent one atom. It is, therefore, contended by Dr. Thomson, that, as two values are thus given to hydrogen, should the value adopted prove erroneous, the substitution of the other will cause a proportional alteration in the atomic numbers for all other bodies. In reply to this we say, that the experimental ratio between oxygen and hydrogen may be considered as definitively settled, and that the difficulty mentioned by Dr. Thomson can only grow out of the different modes of viewing the atomic combination of these elements by different chemists. The atomic view, taken by all chemists, except Berzelius and Sir H. Davy, respecting the composition of water, is, that the experimental ratio represents a single atom of each of its constituents. Now, on this reasonable assumption, hydrogen being called 1, oxygen becomes 8; but should Berzelius's view, that the combining quantity of the hydrogen comprises two atoms, be finally rendered most probable, it by no means follows, that any necessity would exist to unsettle all our numbers, by doubling them, in order to make the actual unit consonant with the new supposition. All that would be necessary in such an event, would be to say, that unity represented the weight of two atoms of hydrogen.

If the argument of the discrepant opinions respecting the atomic

weight of hydrogen, be any objection to the hydrogen unit, the same argument may be urged against the oxygen scale of numbers. For Dr. THOMSON, at page 464, Vol. II. when he wishes to obviate the anomaly of half an atom of oxygen, supposes the possibility, that the combining weight of oxygen, at present considered to denote one atom, may really represent two atoms; and no kind of objection can be made to our statement, that the hydrogen numbers need not be disturbed; since, under precisely similar circumstances in relation to oxygen, Dr. THOMSON insists, that the oxygen scale of numbers requires no alteration. His words are, "This supposition, [that the atom of oxygen may weigh but half its present number] if admitted, will make no alteration in the atomic weights given in this work; it will only alter our way of viewing them, and 1, instead of denoting the weight of 1 atom of oxygen, will represent 2 atoms."

Dr. THOMSON further objects to the hydrogen unit; because this element unites with comparatively few bodies, while oxygen possesses the most extensive powers of combination. This being the case, Dr. THOMSON remarks, that the advantage of the simple arithmetical process of adding unity, is much more extensively enjoyed by the adoption of the unit for oxygen than for hydrogen. But can this be considered a strong argument in favour of the position of our author? On the hydrogen unit, oxygen becomes 8; and here the arithmetical process consists in merely adding 8 for every atom of oxygen in an oxide. Is there then so much difference in facility between the addition of unity, and of so small a number as 8?

Dr. THOMSON further alleges, in support of his preference of the oxygen unit, that the ratios, expressed by small numbers, are much more easily observed than those denoted by large ones. In proof of this, he alleges, that the ratio of 38741 to 116223 is not apparent at a glance, though it is the same as 1 to 3. In answer to this, we reply, that the position is only true under certain limitations. If the smaller numbers are expressed by the aid of a greater number of figures than the larger, it certainly cannot hold. Thus the ratio of .125 to 1, on the oxygen unit, is not so easily perceived as that of 1 to 8 on the hydrogen scale. Neither is the ratio of the oxygen numbers for chlorine and muriatic acid, namely, 4.5 and 4.625, so readily observed, as the ratio of

the hydrogen numbers, 36 and 37. So that whenever decimals occur, especially when they extend to several places, as they frequently do on the oxygen scale of numbers, this argument of Dr. THOMSON, in favour of the oxygen unit, so far from being in point, proves the greater advantage of the hydrogen numbers.

At page 16, Vol. I. Dr. THOMSON remarks, that "it is highly important in chemistry, that the atomic weights of bodies should be represented by the smallest possible numbers." To show that this proposition is too broadly expressed, we would ask, what would be the effect of assuming unity to express the atom of uranium, that simple body, which has the highest atomic weight. By doing so, all the numbers on the oxygen scale would be rendered 26 times less; but would any one contend, that this alteration, making all the atomic numbers, except one, less than unity and therefore fractional, would be an improvement?

The great advantage of the hydrogen unit is, that we get whole numbers to express all the atomic weights. This depends upon the general fact, already adverted to, and which is fully admitted by Dr. THOMSON, that all the higher atomic weights are multiples by a whole number of the smallest, or that of hydrogen. Now, on the oxygen unit, a large proportion of simple and compound bodies become necessarily represented by a fractional number. Notwithstanding the obvious superiority of the former numbers, on the single ground of the absence of fractions, Dr. THOMSON cannot see, that the decimals are so great a disadvantage on the oxygen scale, as the greater size of the hydrogen numbers, on the hydrogen scale. This opinion is predicated on the fewness of the fractions, they being "either 0.25, 0.5, or 0.75, *except* in four or five cases, when the fraction is 0.125, 0.375, or 0.625;" and on the alleged fact, that nearly half the numbers on the oxygen scale are whole numbers, and consequently combine this advantage with that of being of smaller size.

Speaking of the division of sentiment amongst chemists on the subject of the oxygen and hydrogen scales of atomic numbers, Dr. THOMSON remarks, that "Mr. DALTON made choice of the atom of hydrogen for his unity. And in this he has been followed by Dr. HENRY, of Manchester, and by *one or two chemical gentlemen in London*. But this method has been *rejected* by almost all the British chemists, and by all the chemists, *without exception*, in Eu-

rope and America." Vol. I. p. 14. This statement is very inaccurate. We have in favour of the hydrogen scale, Mr. DALTON, Dr. HENRY, and Dr. URE, and the "one or two chemical gentlemen in London," comprising Sir H. DAVY, Mr. BRANDE, Mr. PHILLIPS, Mr. CHILDREN, and Dr. PARIS, not to mention others. In America, so far from the hydrogen unit being *universally rejected*, all the writers that have alluded to the subject have given it the preference.* It is true, that the writers on the continent of Europe adopt the oxygen unit; but, amongst them, that principle is not recognised, which renders the hydrogen unit so much more convenient; namely, the multiple property of the combining numbers. Hence it follows, that the numbers used on the continent, if raised to the hydrogen scale, would have the disadvantage of being larger, without being simplified by the disappearance of fractions.

We have already alluded to the simple laws of combination, applicable to gaseous bodies, when viewed in the relation of bulks or volumes, and shown, in a cursory manner, how a series of numbers, expressive of the volumes, which gases affect in combination, may be converted into a correspondent series, representing weights. Considering that the combining volumes of gases are reciprocating ratios, it would appear surprising, that no one has insisted on the expediency of *fixed* numerical expressions to denote them. If ratios of combination by weight are, by common consent, expressed in constant numbers, made up in reference to a series, conventionally adopted, and if great advantages are found to result from this practice, can it be doubted that similar advantages would flow from its adoption for combining volumes. Nevertheless, the great majority of chemists are content to express ratios in volume, by means of numbers, independent of any series; whereby the equivalent or reciprocating property of the volumes is rendered less apparent, and much perplexity often created.

If it be conceded, then, that we ought to have numbers, denoting equivalent volumes, the next question is, in what numbers shall the ascertained ratios be expressed? The ratios are

* See "The Elements of Chemical Science," by John Gorham, M. D. Boston, 1819:—"A System of Chemistry for the use of Students of Medicine,"—By Franklin Bache, M. D. Philadelphia, 1819:—and Dr. Macneven's Edition of Brande's Manual of Chemistry, New York, 1821.

very limited, being all denoted by the numbers 1, 2 and 4.* The ratio expressed by the middle number, denotes incomparably the greater number of gases, including all the simple gases, except oxygen. This ratio, therefore, ought evidently to be represented by unity; thus throwing the advantage of the simplest number, where it will be applicable to the greatest number of gases. Oxygen will then be denoted by $\frac{1}{2}$, and the few gases, which affect the highest ratio, will be represented by 2.

Dr. THOMSON appears to feel the importance of equivalents for volumes, and usually adopts the numbers here advocated; but he nowhere dwells on the advantages, derived from their use, or explains the general principles of combination, which demonstrate their utility. In some instances, however, he adopts independent ratios, not having reference to a series. Examples of this are to be found in various places in the work before us. Thus in Vol. I. p. 18, the composition in volume of the carbonates of ammonia is stated to be, one volume of carbonic acid, severally combined with one volume, and with two volumes of ammonia; instead of the equivalent volumes,—two volumes of ammonia, with one and two volumes of carbonic acid, stating the composition in the usual order. The same criticism applies to the manner of stating the combination of fluoboric acid with ammonia in several places. At page 51, water is given as consisting of 1 volume of oxygen, and 2 volumes of hydrogen, instead of half a volume of oxygen and 1 volume of hydrogen. The same numbers are repeated at page 242; but here we have this saving clause, which shows that the propriety of the numbers here advocated is admitted by Dr. THOMSON himself: "Or if we choose, *for the sake of simplicity*, to represent an atom of hydrogen by a volume of the gas, then we must represent an atom of oxygen by half a volume of the gas."

When speaking of the gases, whose equivalent volume is represented by 2,† on the hydrogen unit of volume, Dr. THOMSON says,

* We exclude the equivalent volumes of protoxide of chlorine, nitrous acid vapour, and atmospheric air; the condensation of the elements of the two former compounds not being well made out, and the latter, not being generally admitted to be a chemical compound. These compounds being included, the ratios will be expressed by 1, 2, 2.5, 3, 4, and 5.

† Dr. Thomson enumerates five gases as having this equivalent volume; namely, ammonia, hydrocyanic acid vapour, deutoxide of azote, (nitrous gas) muriatic acid, and hydriodic acid. He might have added to the list, chloroeyanic acid, it being composed of 1 volume of each of its constituents, without condensation.

"When we compare these five gases with each other, an atom may be substituted for a volume; but when we compare them with the gases in the preceding table, [meaning the gases whose volume is represented by unity] two volumes represent an atom, while 1 volume of the second set of gases represents an atom." Vol. I. p. 247. Now, although we admit the truth of the statements, contained in the above quotation, we object to them as unsettling the numbers, expressive of equivalent volumes; for we are fully convinced, that great simplicity would be attained, by denoting the ratios by volumes, by a series of constant numbers, always having the same co-relation to the series, representing atomic weights.*

The next subject we propose to notice, is the relation between the specific gravity of gases and their atomic weights. For the fullest exposition of this relation, we are indebted to Dr. Prout; but the fact of its simplicity followed as a necessary consequence to the theory of volumes, established by Gay-Lussac. For it must be evident, that, while the atomic numbers are merely the combining ratios of bodies by weight, combining volumes represent the spaces, which the different chemical substances, taken in quantities represented by their atomic numbers, would occupy. If then the combining volumes are found to have a very simple relation to each other, a simple relation is obviously established between the atomic weight and specific gravity. Let us suppose, for a moment, that the volumes, in which gases combined, was always equality; then it is evident, that the atomic weights of the gases would be the weights of *equal* volumes, or their specific gravity. Let us suppose, again, that 3 gases combine in the ratio of 1, 2, and 4 by volume; then their several

* The advantage of fixed over shifting ratios becomes very apparent, when one gaseous body combines with another in multiple proportions: thus,

1 atom of carbonic acid, more 1 atom of ammonia, form carbonate of ammonia; and

2 atoms of carbonic acid, more 1 atom of ammonia, form bicarbonate of ammonia.

Now if we turn these atomic weights into the *equivalent* volumes, 1 volume of carbonic acid representing 1 atom, and 2 volumes of ammonia, 1 atom also; we then have

1 volume of carbonic acid, more 2 volumes of ammonia, forming carbonate of ammonia; and

2 volumes of carbonic acid, more 2 volumes of ammonia, forming bicarbonate of ammonia.

Here all the expressions, both by weight and volume, are equivalent, or convertible quantities; but if we choose to express the bicarbonate by single volumes, merely because the ratio is that of equality, we destroy the symmetry of the numbers, and create ambiguity as to the real bi-compound.

atomic numbers will represent the weight of volumes of such gases, having the relation, 1, 2, and 4. Call the atomic weight of the gas, whose ratio by volume is denoted by the smallest number, its specific gravity, and then the atomic weight of the 2nd gas will represent twice its specific gravity, and that of the 3d, 4 times its specific gravity.

To apply the illustration to a real case,—oxygen, hydrogen, and ammonia have their combining volumes expressed by the ratios, 1, 2, and 4; while their atomic weights, on the oxygen scale, are, 1, 0.125, and 2.125. Assume it, that the atomic weight of oxygen represents its specific gravity; then the atomic weight of hydrogen will denote a portion of this gas, double in bulk of that represented by the atom of oxygen, or twice its specific gravity, and the atom of ammonia, quadruple said bulk, or quadruple its specific gravity. So that calling the specific gravity of oxygen 1, that of hydrogen becomes 0.125, divided by 2 = .0625, and that of ammonia, 2.125, divided by 4 = .53125.

If, however, instead of 1, we call the specific gravity of oxygen 1.1111, by which number it will be represented, atmospheric air being reckoned unity; then, by the rule of proportion, we may increase the atomic weights of hydrogen and ammonia, in the same ratio; whereby we shall obtain numbers, representing respectively, double and quadruple the specific gravity of these bodies. Thus, we may say, as the atomic weight of oxygen, 1, is to its specific gravity, 1.1111,—so is the atomic weight of hydrogen, .125, to twice its specific gravity. This proportion gives for the 4th term, .1388, which divided by 2, gives .0694. A similar proportion for ammonia, gives 2.36108, which, divided by 4, gives .59027 for the specific gravity of this gas.

From what has been said, it must appear evident, that, knowing the atomic weights of the gases, and these weights representing simple relations of volumes, it must be very easy to calculate their specific gravity, relatively to any assumed standard. We have made this calculation for two gases, assuming the combining ratio of oxygen as its specific gravity, and giving it the several values of 1 and 1.1111. When the relation in volume of atomic weights of oxygen and another gas is as 1 to 2, which is the most usual ratio; then, upon any assumed number for the specific gravity of oxygen, the number obtained for such gas, by the rule of three calcula-

tion given in the preceding paragraph, will represent twice its specific gravity, and must be divided by 2. In all such cases, then, the formula for calculating specific gravity, will be to multiply the atomic weight of any gas, by the specific gravity of oxygen, and divide the product by 2. When, however, the ratio of volume representing the atomic weights, is as 1 to 4, which is the case with a few gases, compared with oxygen, then the formula is the same, except that the number obtained by multiplying the atomic weight into the specific gravity must be divided by 4.

In the first set of cases, where the relation of the combining volume of oxygen to that of other gases, is as 1 to 2, if we make the 2nd term in the proportion, half the specific gravity of oxygen, then the 4th term becomes diminished one-half, and gives at once the specific gravity sought. Thus, we may calculate the specific gravity of hydrogen by the following proportion:

1 : .5555, or half the sp. gr. of oxygen :: .125 : .0694

This obviously comes to the same thing as

1 : 1.1111 :: .125 : .1388, dividing the fourth term of the proportion by 2.

The first formula is evidently the shortest, and is applicable to all those gases, (about five-sixths of the whole) whose combining volume is double that of oxygen. It is perceived that it merely consists in multiplying the atomic weight of the gas, whose specific gravity is sought, by half the specific gravity of oxygen. When however, the combining volume of a gas is quadruple that of oxygen, a similar short process of calculation may be pursued, consisting in multiplying the atomic weight of such gas by one-fourth the specific gravity of oxygen.

We have been thus particular in explaining both the principles and practice of the calculations for specific gravity, as founded on the theories of atoms and volumes; because Dr. THOMSON, in his book, has given us nothing but confused and detached observations on the subject. Thus he says at page 25, Vol I.

Dr. Prout "observed also, that, in general, the specific gravity of the body in the gaseous state, may be obtained by multiplying its atomic weight by 0.5555, or half the specific gravity of oxygen gas; because the atom of oxygen is represented by half a volume, but that of most other substances by a whole volume." Again he observes, Vol. I. page 241, "Dr. Prout first pointed out the connexion, which existed between the specific gra-

vity and the atomic weights of the gases, and showed, that, in general, the specific gravity is equal to the atomic weight, multiplied by half the specific gravity of oxygen gas." Again he says

"The specific gravities of oxygen gas, hydrogen gas, chlorine gas, and azotic gas, have been determined with rigid accuracy in the preceding chapters. The knowledge of the atomic weights of the other bodies will enable us to determine the specific gravities of the vapours and gases, of which they constitute parts, with equal accuracy; for we obtain these specific gravities by multiplying the atomic weights by 0.5555.

"The following table exhibits the atomic weights and specific gravities of all the gases and vapours coming under this *law*." Vol. I. p. 243. [Here follows a table of gases, whose combining volume is double that of oxygen.]

After explaining in an imperfect manner, the peculiar relation of the five gases, whose combining volume is quadruple that of oxygen, we have these words:

"From what has been just stated, it must be obvious, that, in these five gases, the specific gravity will be obtained by multiplying the atomic weight of each by 0.2777, or one-fourth of the specific gravity of oxygen gas." Vol. I. p. 247.

Thus it would appear, that Dr. THOMSON regards as a chemical law, the arithmetical process of calculating the specific gravity of gases, by multiplying their atomic weights by certain numbers. Certainly, this is not a distinct way of presenting the subject. The general chemical fact or law, on which the relation of specific gravity to atomic weight is founded, is evidently the simple ratio of the spaces, which atomic quantities of the gases occupy. Knowing, therefore, the comparative weights of volumes, having the ratio of 1 to 2, or 1 to 4, no person could be at a loss, from such data, to calculate the comparative weights of *equal* volumes, upon any assumed standard.

Again, upon knowing the comparative volumes of the atomic weights of gases, we have the data necessary for calculating such weights upon any assumed standard, by means of their specific gravity. Thus, the specific gravity of oxygen and azote being given, and the ratio of volumes, correspondent to the atomic weights of these gases, being known to be as 1 to 2, we have all the data, requisite to calculate the atomic weight of azote, on any assumed number for oxygen. Call the specific gravity of oxygen 1.1111, and that of azote .9722, and let the atomic number of oxygen be assumed at 1, then we have this proportion,

1.1111 : .9722 :: 1 : .875

As the fourth term gives the weight of a quantity of azote, equal in volume to the oxygen, it represents but half the atomic weight of that gas. .875, therefore, multiplied by 2, gives 1.75, or the atomic weight of azote.

If it be desired to avoid doubling the fourth term, as a subsequent arithmetical operation, all that is necessary, is to halve the first term, which gives the fourth at once, at double what it would otherwise be. We then have this proportion:

.5555 : .9722 :: 1 : 1.75

The arithmetical operation here necessary is obviously to divide the specific gravity of azote by half the specific gravity of oxygen; and the proportion, on which it is founded, is applicable to all gases, whose atomic weights correspond to volumes, as 1 to 2. When the atomic weight of oxygen, and that of any other gas, represent volumes, as 1 to 4, the arithmetical rule would be to divide the specific gravity of such gas, by one-fourth the specific gravity of oxygen, or .2777.

Here then is laid open to the reader, the grounds of another misnamed chemical law of Dr. THOMSON, the reverse of the first; namely, that if you divide the specific gravity of a gas by half or one-fourth the specific gravity of oxygen, you obtain its atomic weight.

In the preface to the work before us, we are told, that it is principally intended as an exposition of the atomic theory, for the use of the public class of students of the author; in order to relieve his lectures from the abstruse details, which are necessarily connected with this subject. We would, therefore, beg leave to ask, whether the enunciation of rules, consisting of one arithmetical operation, and dependent on a train of reasoning not explained, can subserve the purposes of philosophical explanation.

Connected with this branch of our analysis, we have a very remarkable passage in our author. He says, "Thus it appears, that the atomic weight of oxygen is obtained by *dividing the specific gravity of oxygen gas by itself;* for $\frac{1.1111}{1.1111} = 1$." Vol. I. p. 243. It is difficult to obtain any definite idea from this sentence. The result is got by this unmeaning proportion,—that if 1.1111 in volume weigh 1.1111, then 1 in volume will weigh 1! The fact is, we cannot calculate the atomic weight of oxygen, unless empyrically; since it is at last but a simple assumption.

As a note to the rule for calculating the atomic weights of gases, by *dividing* their specific gravity by half the specific gravity of oxygen, we have the following confused remarks:

"I need hardly point out to the reader, that the reason why the multiplicand of the specific gravity of the gases is $\frac{1}{2}$, or $\frac{1}{4}$th the specific gravity of oxygen gas, instead of simply $\frac{1}{2}$ and $\frac{1}{4}$, is, that the specific gravities and the atomic weights are referred to different standards. The *specific gravity* of atmospheric air is reckoned unity, and that of every other gas is referred to it; but the atomic weight of oxygen being unity, and that of all the other gases referred to it, as far as atomic weights are concerned, it is obvious, that when specific gravities are to be converted into atomic weights, we must employ for our divisor half or $\frac{1}{4}$th the specific [gravity] of oxygen gas, in order to change one system into the other. All this trouble would be saved, if we were to make the specific gravity of oxygen gas unity, as well as its atomic weight." Vol. I. p. 243.

It is evident that the explanation intended to be conveyed in the above quotation entirely fails. The truth is, that it is difficult even to know what the author meant to convey, though we presume we have discovered it. We shall not, however, stop to show specifically, in what consist the looseness and obscurity of this note. These are too obvious to require pointing out.

In reference to the arithmetical rules of converting atomic weights into specific gravities, as applied to gases, assuming oxygen as the atomic unit, it may be worth while to remark, that equally simple ones are applicable upon the hydrogen standard. When a gas has the same combining volume with hydrogen, all that is necessary, in order to calculate its specific gravity, is to multiply its atomic weight by the specific gravity of hydrogen, which solves this proportion, applicable to all such cases:

1 (atomic weight of hyd.): atomic weight of the gas ::
.0694 : specific gravity required.

When the gas, whose specific gravity is sought, has a combining volume, which is double that of hydrogen, then the 3d term of the proportion must be taken at half the specific gravity of hydrogen. But if it have a combining volume, half that of hydrogen, then the 3d term must be assumed at double the specific gravity of hydrogen.

To perform the converse operation of converting specific gravities into atomic weights on the hydrogen scale, it is plain that all that is necessary is to divide the specific gravity of any gas by

the specific gravity of hydrogen, or half or double its specific gravity; according as the relation of the combining volume of hydrogen, compared with that of any particular gas, may happen to be.

We have insisted on the expediency of having constant numbers to denote the ratios of combining volume, and admitted the propriety of the numbers, generally adopted by Dr. THOMSON. We have also shown, how the numerical representations of combination, both by weight and volume, may become convertible terms, a principle of which our author frequently avails himself in his calculations. Notwithstanding the aid derived from a knowledge of the equivalent ratios, Dr. THOMSON has strangely mistook the nature of olefiant gas. Thus he says,

"Olefiant gas has not been inserted in the preceding tables; it has been reserved for separate notice, on account of the peculiarity of its nature. Its specific gravity is 0.9722; and it is obvious from the phenomena of its combustion, that it consists of 2 volumes of hydrogen gas, and 2 volumes of carbon vapour, condensed into one volume. Now, as in these two bodies, atoms may be substituted for volumes, this gas is obviously a compound of 2 *atoms* hydrogen, and 2 *atoms* carbon. Hence its atomic weight is 1.75; but $1.75 \times 0.5555 = 0.9722$;—so that this gas coincides with the compound gases in the second table." [Table containing the gases, whose combining volume is 1.] Vol. I. p. 248.

Here the duplication of the volume equivalents of hydrogen and carbon is very unphilosophically resorted to, to denote the composition in volume of olefiant gas. While our author correctly converts them into their correspondent atomic weights, he brings out the absurdity, that the gas in question consists "of 2 *atoms hydrogen and* 2 *atoms carbon.*" In the next paragraph, however, we are correctly told, that this gas "is obviously a compound of 1 *atom hydrogen and* 1 *atom carbon.*"

By the first assumption, the combining volume and atomic weight of the gas are improperly doubled, in order, as it would seem, to render the multiplier for specific gravity, (.5555) employed when the combining volume is unity, applicable to it.

The truth is that olefiant gas is really a compound of 1 atom of hydrogen and 1 atom of carbon; which weights, converted into their co-equivalent volumes, give 1 volume of hydrogen, and 1 volume of the vapour of carbon, as the composition in volume. These volumes being condensed into one-fourth of their original

bulk, gives *half a volume* as the *combining volume* of olefiant gas; that is, the *bulk* correspondent to its atom. Thus it is evident, that olefiant gas and oxygen affect the same combining volume; and calling the combining volume of oxygen half a volume, the combining volume of olefiant gas is also half a volume. It is consequently clear, that the atomic weights of these two gases are in the same ratio as their specific gravities, and to calculate the specific gravity of olefiant gas, we have this proportion;— 1 : .875 :: 1.1111 : .9722; to solve which, it is merely necessary to multiply .875, the real atomic weight of olefiant gas, by 1.1111, the specific gravity of oxygen.

Thus then it is perceived, that the rule for calculating the specific gravity of olefiant gas, is to multiply its atomic weight, by the specific gravity of oxygen entire.

It cannot be presumed, that Dr. THOMSON deserted the principles, which regulate our reasonings respecting atomic combination, in reference to olefiant gas, merely from a repugnance to the admission, that any gas could have the same combining volume with oxygen. For his book will show, that he has given to fluosilicic acid this very relation to oxygen. Hence in his tables, fluosilicic acid is the only gas associated with oxygen, and its specific gravity is directed to be obtained by multiplying its atomic weight by the specific gravity of oxygen.

It seems rather unfortunate, that Dr. THOMSON should, on theoretical grounds, have associated fluosilicic acid with oxygen, as having the same equivalent volume; and at the same time, placed elsewhere olefiant gas, which, for the most conclusive reasons, ought to have been classed with that supporter.

Connected with olefiant gas, we have some remarkable speculations in the work before us. Dr. THOMSON is of opinion, that there exist four varieties of this gas, all identical with it in the proportions of their constituents, but differing in the degree of condensation, which the elements have undergone. Thus, representing olefiant gas as

2 volumes of carbon vapour + 2 volumes of hydrogen } condensed into 1 volume,

Dr. THOMSON conceives that there exists a variety of this gas, less condensed, composed of

1 volume of carbon vapour + 1 volume of hydrogen } condensed into 1 volume;

and three varieties, more condensed, consisting, severally, of

3 volumes of carbon vapour + 3 volumes of hydrogen } condensed into 1 volume,

4 volumes of carbon vapour + 4 volumes of hydrogen } condensed into 1 volume, and

6 volumes of carbon vapour + 6 volumes of hydrogen } condensed into 1 volume.

The first variety is a product of Dr. THOMSON's imagination. "He sees no reason to doubt its existence." Are we to suppose, that the temptation, furnished by the vacant niche at the beginning of the series, was too strong, to permit it to remain unfilled? Surely this indulgence in purely hypothetical views but badly accords with the exclusive experimental character of the work, as announced in its title.

The second variety, consisting of three volumes of each element, condensed into 1 volume, is stated to have been discovered by Mr. DALTON, as a product of whale oil, exposed to a red heat. We have examined the memoir of Mr. DALTON on oil gas, and find that no such combination is alluded to. The new gas mentioned by him under the name of superolefiant, is supposed to consist, either of two atoms of olefiant gas with one of carburetted hydrogen, (bihydroguret of carbon) condensed into the space of two atoms of olefiant gas;* or of two atoms of olefiant gas, comprised in the space of one. Now neither of these suppositions furnishes a gas, agreeing with Dr. THOMSON's 2nd variety of olefiant gas.

The 3d variety, consisting of 4 volumes of each element, condensed into 1 volume, would agree with one supposition of the constitution of superolefiant gas, as given by Mr. DALTON; namely, that this gas consists of two atoms of olefiant gas, comprised in

* Mr. Dalton's words are, "In order to form a gas," [which for every 100 measures would produce by explosion, 300 measures of carbonic acid, and consume 500 measures of oxygen,] "it would only be required to combine an atom of olefiant gas with 1 of carburetted hydrogen, and to condense them both into the space of 1 atom of olefiant gas." Manchester Memoirs, Second series, Vol. IV. published in 1824, p. 75.

The above statement evidently contains an error of inadvertency; as a gas, formed as there directed, would not, by explosion, furnish carbonic acid, and consume oxygen in the proportions assumed. The mistake has arisen from supposing, (on the assumption of 1 volume of light carburetted hydrogen being equivalent to an atom) that 1 volume of olefiant gas also represents an atom, whereas it represents 2 atoms. We have corrected the error in our text.

the space of one. Its existence, however, is not made to rest on Mr. DALTON's authority. It is alleged by Dr. THOMSON to constitute the vapour of sulphuric ether. This we admit, when this vapour is considered apart from the water which it contains; in other words, is destroyed. For it is known, that sulphuric ether consists of 2 volumes of olefiant gas, and 1 volume of the vapour of water, condensed into 1 volume. There appears to be no instance of a compound gas, undergoing a further condensation by a new combination, except in the constitution of the vapour of sulphuric ether, and consequently, we cannot illustrate the point under consideration by analogies; but still we think it unphilosophical to trace the condensation, produced by chemical union, of a particular component of a gas, and then to speak of such component, as *per se* so condensible.

The 4th variety, consisting of 6 volumes of each element of olefiant gas, condensed into 1 volume, is stated by Dr. THOMSON to be furnished by the vapour of naphtha from coal.

In regard to these alleged varieties of olefiant gas, we must be permitted to remain skeptical, until their existence shall be established by satisfactory experiments. As yet we have no analogy to bear us out in the supposition, that there can exist compound gases, identical in all respects, except in the condensation which their elements have undergone; and before we admit a new principle of combination, the facts, which, if proved, would establish it, ought to be scrupulously examined.

The specific gravity of any compound gas being known, we have all the data necessary for calculating that of its constituents, upon knowing the proportions in which such constituents combine, both by weight and volume. In calculating the specific gravity of oxygen and azote from atmospheric air, we connect at once the specific gravity of these bodies with the assumed specific gravity of the latter compound; and our ratios emanate directly from the only source of all the specific gravity numbers for the gases. This being the fact, the first and most important step, in ascertaining the specific gravity of the gases, is to deduce, by the most rigidly exact experiments, the specific gravities of azote and oxygen from atmospheric air. In this way, we not merely obtain an independent ratio, correct for these two gases, but accurate also with reference to the common standard.

Dr. THOMSON has been fully sensible of the importance of this determination, and by experiments, has amply confirmed the generally admitted fact, that atmospheric air consists of 2 volumes of azote, and half a volume of oxygen, without condensation. It being fully proved, that atomic quantities of azote and oxygen, (1.75 and 1) are in volume to each other as 2 to 1, it is easy to calculate the relative weights of bulks of these gases, in the ratio of 4 to 1. So that knowing the composition of atmospheric air both by weight and volume, we have all the data necessary, as above mentioned, for calculating the specific gravity of azote and oxygen.

Dr. THOMSON, on these data, calculates, in a note, by the help of algebra, the specific gravity of azote and oxygen. But we object to this recourse to algebra, when its assistance is not needed. To solve the question, all that is necessary is to say, that 1 volume of air weighs 1, and that, while the oxygen in it, is to the azote in weight, as 1 to 3.5, or 2 to 7, the same elements are to each other in volume, as 1 to 4. Two-ninths of its weight, therefore, are oxygen, occupying the space of one-fifth of a volume; and consequently, two-ninths of $1 \times 5 =$ the weight of 1 volume of oxygen, or its specific gravity. Now two-ninths of 1 are .22222, which number, multiplied by 5, gives us 1.1111 as the specific gravity of oxygen.

On the other hand, seven-ninths of 1 give the weight of four-fifths of a volume of azote; and $\frac{1}{4}$th of this number, added to itself, gives the weight of 1 volume of azote, or its specific gravity. Now seven-ninths of 1 are .77777, $\frac{1}{4}$th of which number, added to itself, gives .9722 for the specific gravity of azote.

Having availed ourselves of the advantages of the analysis of atmospheric air, with a view to the specific gravity of its constituents, thereby connecting the numbers for two important gases, directly with the standard unit of specific gravity,—if the numbers obtained are further confirmed by direct experiment, we attain all the precision of which the subject is susceptible. This precision is in fact reached, in relation to the gases in question. For by the experiments of BERZELIUS and DULONG, which may be considered the most elaborate, the specific gravity of oxygen is 1.1026, and that

of azote, .9760,* which determinations come sufficiently near to 1.1111, and .9722, to create confidence in the latter numbers.

Dr. THOMSON gives us 1.1117, as his experimental result by weighing for the specific gravity of oxygen. This number is nearer than any other to its specific gravity, as deduced from the composition of atmospheric air. Dr. THOMSON, however, is not content with this result, but seeks the specific gravity of oxygen by a new method. Having made an analysis of oxide of zinc with scrupulous attention to accuracy, he deduced the volume of oxygen, which combines with a given weight of this metal to convert it into oxide, by ascertaining the volume of hydrogen, which its solution in dilute sulphuric acid yields. Knowing, in this way, the weight of a given volume of oxygen, it was easy to calculate its specific gravity.† Proceeding in this manner, he brings out the specific gravity of oxygen, 1.1111 "nearly." Now the exact number, which he obtains from his data, is 1.1119, which differs from the number, which he supposes absolutely correct, more than his determination by the ordinary method of weighing. The new determination may be a good coincidence; but it is a strange way to prove *experimentally*, "that the specific gravity of oxygen gas must be 1.1111," by showing that it is 1.1119.

We would, by no means, be understood to doubt for a moment, the correctness of the specific gravities for oxygen and azote, adopted by Dr. THOMSON; they being confirmed by a multitude of coincidences, dependent both on theory and experiment. But we object to the pretensions, held out in the present work, that certain numbers are rigidly and exactly obtained by experiment; whereas nothing is arrived at but good approximations, a result which had been previously accomplished by several celebrated chemists.

While on this branch of our analysis, we may state, as a general objection to the work before us, the too great anxiety to esta-

* Dr. Thomson has very unwarrantably pronounced these experimental results of Berzelius and Dulong to be inaccurate; because, on the generally admitted composition of atmospheric air by weight and volume, its calculated specific gravity comes out 1,00132, instead of unity! Even conceding that Berzelius and Dulong admit the data of Dr. Thomson, the calculated specific gravity of atmospheric air being so near to unity, rather confirms the precision of their experiments. No experimental results can be absolutely exact except by accident.

† Connected with this experiment, there are several errors in the calculations. See vol I. pp. 64 and 65.

blish certain numbers, whose correctness had been predetermined in the mind of the author. This is evinced by the rejection of experimental results as inaccurate, when not coincident with preconceived atomic weights; and by the practice of deducing mean determinations from selected analyses of different compounds, whose atomic constitution is most artificially conceived. In proof of the last observation, we will merely refer to the mode of proceeding in the present work, to determine the atomic weight of silica and alumina.

We have already adverted to the general facts of chemical combination, which form the basis of the atomic theory. Now Dr. THOMSON was an early and strenuous advocate of this theory, and in the present work, constantly uses the expression, atom, and atomic weight, to denote equivalent ratios. It is a fundamental position of this doctrine, that chemical proportions are *reciprocating*, because they represent the weights of atoms, whose ratios are necessarily reciprocating; and that successive proportions are *multiple*, because combinations by *indivisible* atoms admits not of intermediate gradations. Hence it must appear evident, that the admission of the existence of *fractional* atoms is fatal to the atomic theory.

Notwithstanding the truth of these remarks, Dr. THOMSON has ventured to employ fractional atoms in particular cases, on the ground of expediency. This inconsistency of dividing in practice, what is assumed to be in its own nature indivisible, was not to be expected from a strenuous advocate of the atomic philosophy, as Dr. THOMSON is known to be.

When the number of atoms, representing the constituents of a compound, is as 1 to $1\frac{1}{2}$, we may, as Dr. THOMSON mentions, remove the anomaly, by doubling the numbers, and considering the combination as consisting of 2 atoms to 3. By the last supposition, the atomic weight of a body becomes evidently twice as great as by the first. As the atomic numbers are *cumulative*, that is, are larger the more compounded a body is, or the more complex its atomic nature may be,—it appears possible, to determine the atomic constitution of some doubtful compounds, where the number of atoms is as 2 to 3, by carefully investigating their equivalent numbers. But unfortunately, the combinations, into

which such compounds enter, are so few, that it is not easy to remove all ambiguity in judging of their combining weights.

As connected with this subject, we would object to the omission to reduce atomic quantities to the lowest atomic terms. Examples of such omissions are afforded by the statements of the ultimate composition of several vegetable acids. Thus citric acid is stated to be composed of

2 atoms of hydrogen,
4 atoms of carbon, and
4 atoms of oxygen :—instead of
1 atom of hydrogen,
2 atoms of carbon, and
2 atoms of oxygen,—or the same proportions, reduced to their lowest terms. The same remark is applicable to benzoic and saclactic acids.

The supposed necessity for this artificial mode of viewing the atomic composition of particular vegetable acids, is to make their atomic weights, deduced from ultimate analysis, coincide with those obtained by analysing their saline combinations. But the difficulty is easily removed, by considering several atoms of acid to be united to one of base. Thus, if the equivalent from ultimate analysis be half the saline equivalent, it is only necessary to consider the saline combinations as bi-salts; if one-third the saline equivalent, as in the case of benzoic acid, the salts formed may be viewed as tri-salts.

Connected with the atomic constitution of the vegetable acids, we have a remarkable admission in the present work; namely, that substances may possess identity of ultimate composition, without being identical. Thus acetic and succinic acids are both given as composed of

2 atoms of hydrogen,
4 atoms of carbon, and
3 atoms of oxygen.

Depending on the accuracy of the analytic results, Dr. THOMSON does not hesitate to consider them as proving, that differences in chemical properties may arise solely from different binary and ternary arrangements of the same ultimate particles. Before, however, so improbable a view is admitted, the atomic weights of

the compounds, which are supposed to support it, ought to be ascertained with rigid accuracy.

We have now brought under review all those portions of the present work, which, for the most part, involve fundamental doctrines. Although we have, in some instances, been unable to subscribe to the theoretical views of the author, and ventured to suppose occasionally, that some of his chemical laws are empirically deduced from particular classes of cases, rather than from a broad view of chemical phenomena, yet we freely acknowledge, in his experimental labours, a large contribution to our stock of chemical facts. It is not in our power to do justice to the merits of the work, in this particular, within the limits of the present article. All that we can accomplish is to notice, in a concise manner, some facts and observations, which are either new or not generally known.

The decomposition of nitrate of potassa by sulphuric acid, to obtain nitric acid, using the usual proportions, is known to yield this acid, containing 2 atoms water; while the residuum of the process is bisulphate of potassa. The results depend upon using twice as much sulphuric acid as is sufficient to neutralize the potassa of the nitre; while the 2 atoms of water, contained in that quantity of sulphuric acid, become transferred to the nitric acid, which distils over. The specific gravity of the acid, when thus obtained, is 1.48. Dr. THOMSON, however, informs us, that if we use atomic quantities of nitrate of potassa and the strongest sulphuric acid, the nitric acid obtained will be the strongest that can be procured, containing but 1 atom of water, and having the specific gravity of 1.55. Vol. I. p. 113.

Dr. THOMSON has proved in a satisfactory manner, that borax is composed of

| | |
|---|---|
| 2 atoms boracic acid | 6 |
| 1 atom soda | 4 |
| 8 atoms water | 9 |
| | 19 |

So that the salt, usually called sub-borate of soda from the predominance of alkaline qualities, is really a bi-borate. This result shows, that the neutralizing power of boracic acid is very

inferior, and that the acid itself, like the carbonic, is a weak acid. Vol. I. p. 167.

Two species of phosphuretted hydrogen are generally admitted to exist; namely, hydroguret of phosphorus, and bihydroguret of phosphorus. In the work before us, however, the existence of a third species is contended for, and supported by experimental results, under the name of subphosphuretted hydrogen. It is stated to consist of

| | |
|---|---|
| 1 atom of hydrogen | .125 |
| $\frac{9}{4}$ths of an atom of phosphorus | 1.125 |
| | 1.25 |

As the composition of this gas does not accord with atomic proportions, we are disposed to doubt its existence as a peculiar chemical compound. It is indeed true, that two atoms of hydroguret of phosphorus, and 1 atom of bihydroguret, combined together, would form a similar compound; but such an atomic constitution is too complicated to be probable. Vol. I. p. 207.

The fuming sulphuric acid of Nordhausen was ascertained by Dr. THOMSON's analysis, to consist of

| | |
|---|---|
| 2 atoms dry acid | 10. |
| 1 atom water | 1.125 |
| | 11.125 |

When this acid is distilled into a refrigerated receiver, "one half of the acid passes over in a solid state, forming a snow-white solid acid, like asbestus in appearance."* What remains in the retort is evidently ordinary sulphuric acid. If the experiment be accurate, the white solid acid must be anhydrous sulphuric acid. But what seems to put this supposition beyond a doubt is the following ingenious experiment of Dr. THOMSON.

After stating that the "avidity" of the solid acid "for water is so great, that it smokes violently, when exposed to the air, and is dissipated so speedily, that it cannot be weighed," he proceeds; "But, by dropping a piece of it into a known weight of water, and then determining the increase of the weight of the liquid, I

* The solid acid was first obtained by pursuing this process, by Vogel, who suspected it to be anhydrous.

was enabled (by throwing down the acid by means of muriate of barytes) to show that, when solid, it consists of pure acid, totally destitute of water." Vol. I. pp. 215, 216.

A novel fact is mentioned respecting the protosulphate of manganese. "Its taste" is stated to be "somewhat similar to that of Glauber's salt, but rather more disagreeable; and like that salt, it acts as a cathartic, when taken to the extent of about half an ounce." Vol. I. p. 365.

Dr. THOMSON's experiments furnish ample confirmation of the suggestion, first made by DOBEREINER in 1815, that hydrogen is not an element in anhydrous oxalic acid, and consequently that this acid is a binary compound of carbon and oxygen. The same fact was proved by Dr. URE, and is at present admitted by BERZELIUS himself. Its composition, from these concurrent results, is

| | |
|---|---|
| 2 atoms of carbon | 1.5 |
| 3 atoms of oxygen | 3.0 |
| | 4.5 |

equivalent to

| | |
|---|---|
| 1 atom of carbonic oxide | 1.75 |
| 1 atom of carbonic acid | 2.75 |
| | 4.5 |

A curious experiment by DOBEREINER, quoted by Dr. THOMSON, appears to prove, that the proximate constituents of this acid are really carbonic oxide and carbonic acid, and that it cannot exist independently of water. Oxalic acid dried, but still containing a quantity of water, was added to fuming sulphuric acid, in an apparatus to collect the gaseous products. The oxalic acid disappeared, while the sulphuric acid underwent no change but a diminution of strength; and the gaseous matter evolved proved to consist of equal volumes of carbonic oxide and carbonic acid. Vol. II. p. 109.

In like manner, DOBEREINER has ascertained, that formic acid, being added to concentrated sulphuric acid, is resolved into water, which combines with the latter acid, and carbonic oxide, which is evolved; and these products correspond precisely with the results of ultimate analysis. Vol. II. p. 150.

Uric acid, like oxalic acid, appears to be devoid of hydrogen,

when anhydrous. This is proved by concurrent results, obtained by Dr. PROUT and Dr. THOMSON. Vol. II. pp. 162, 163.

Under the head of salts of potassa, we have described a new species of carbonate of potassa, under the name of sesquicarbonate. It was first observed by Dr. NIMMO of Glasgow. It may be formed by mixing carbonate of ammonia with a solution of impure carbonate of potassa, and disengaging the ammonia. Vol. II. p. 255.

As particularly interesting in a medical point of view, we deem it proper to extract the results of Dr. THOMSON's analysis of emetic tartar. Its constituents are stated to be

| | |
|---|---|
| 2 atoms tartaric acid | 16.5 |
| 1 atom potassa | 6.0 |
| 3 atoms protoxide of antimony | 19.5 |
| 2 atoms water | 2.25 |
| | 44.25 |

Or calculated on the hydrogen scale of numbers;—

| | |
|---|---|
| 2 atoms tartaric acid | 132 |
| 1 atom potassa | 48 |
| 3 atoms protoxide of antimony | 156 |
| 2 atoms water | 18 |
| | 354 |

Mr. PHILLIPS has also recently analysed this important salt with the same result, except in the proportion of water, which he finds to be 3 atoms, instead of 2. The coincidence, however, in respect to the important constituents serves to confirm the general correctness of both analyses. By Dr. THOMSON's analysis, we may consider tartarized antimony to be 1 integrant particle or atom of hydrous bitartrate of potassa, (cream of tartar) combined with 3 atoms of protoxide of antimony; for cream of tartar, according to Dr. THOMSON's analysis, contains 2 atoms of water. It appears, at least, certain, that the cream of tartar is not decomposed in the processes for emetic tartar; since the solution obtained, according to both Mr. PHILLIPS and Dr. THOMSON, yields the antimonial salt to the last drop. Vol. II. p. 441.

In regard to the general accuracy of Dr. THOMSON's work, we may remark, that we have detected a considerable number of errors of inadvertence. In the first volume, at page 119, it

is stated, that "if 1 volume of protoxide of azote, and half a volume of oxygen gas, were to unite and be *reduced to three-fourths of a volume*, we should obtain a compound, having the constituents and specific gravity of deutoxide of azote." The words in italics ought to be, *expanded to 2 volumes*. At page 38, the fact is correctly stated. At page 209, in the enumeration of the different acids of phosphorus, hypophosphorous acid is omitted. At page 388, *cerium* is printed for *cadmium*. At pages 416 and 417, some confusion evidently exists respecting the sulphurets of copper, a recapitulation of three being given, when two only are described.

In the second volume, we have the following errors. At page 40, the *peroxide* of antimony is stated to be precipitated from the nitro-muriatic solution of antimony, instead of the *protoxide*. At page 240, *deutoxide* of azote is printed for *protoxide* of azote. At page 324, *peroxide* of iron occurs, instead of *protoxide* of iron. In the statement of the composition of acetate of iron, at the top of page 325, 1 atom of *soda* is printed for 1 atom of *protoxide of iron*. At page 450, the soda-oxalate of copper is stated to be *insoluble*, whereas it is *soluble*.*

It is time to bring this article to a close. From what has been said, the reader will be enabled to form some idea of the character of Dr. THOMSON'S work. That it is not what its name imports, is sufficiently evident; for no first principle is established by experiment, or indeed by any other process. It is nevertheless valuable, as containing a vast number of analyses, and some corrections of atomic numbers; and unquestionably adds to the reputation of the author as an indefatigable chemist.

* Besides these inaccuracies, we have the following: In the first volume, several "arithmetical slips" in the calculations at pages 64 and 65, and 70 and 71. In the second volume, we have at p. 97, the number 6.164 for 6.161. At p. 104, (note) paragraph, No. 4, oxalate of *ammonia* is printed for oxalate of *potasa*. At p. 159, near the bottom, "1.125 *grains*" of water are attributed to 8.56 grs. of urate of soda, instead of 0.656 of a grain. At p. 167, lines 11 and 12, "parts of *sulphate of* barytes" occurs, instead of *parts of barytes*. At p. 338, in the statement of the composition of acetate of nickel, *acetic*, occurs for *acetic acid*. At p. 381, in the statement of the composition of subsesquiarseniate of copper, 1½ atoms of oxide of copper are given as weighing 7.75, instead of 7.5. At p. 518, the logarithmic numbers are erroneously subtracted and added, though the result given is correct.

ARTICLE XIII.—*Medico-Chirurgical Transactions.* Vol. xiii. Part I. London, pp. 280, Oct.

No one can be ignorant of the value of those transactions of the Medico-Chirurgical Society, which, for a series of years, have been successively presented to the public. After an interval of unusual duration, a part of another volume has appeared, calculated, as to its general character, to support the reputation of the society and to benefit the profession. Our limits are so restricted, that it would be impossible to present a full analysis of its contents, or even to notice the various papers it comprises; some of which exhibit little that is novel, either as to opinions or facts, while others are valuable from the new views which are presented, or from the confirmation opportunely afforded to remedial measures or theoretical doctrines of doubtful character. Bearing in mind our general maxim of preferring what is useful to what is merely speculative, we shall select from the latter class, a few of the more important papers for a condensed analytical notice.*

We cannot, however, neglect the present opportunity for recommending, in the strongest terms, the publication of medical papers, under the direction and sanction of well constituted societies. It must be acknowledged, that such associations are productive of many benefits to their respective members; for the collision of sentiment, the generous rivalry of enlightened understandings, and even the competition with avowed and determined opposers, serve at once, to repress the arrogant and to encourage the diffident, but deserving; to congregate scattered facts and thoughts for the illumination of genius; to expose superficial or empirical pretensions; and often to elicit truths the most valuable, and which otherwise might have long remained unknown. The advantages thus conferred on a small collection of individuals, should be extended to the public. By means of competent committees of reference, these transactions should be purified from whatever is trite or altogether useless, and thus elaborated, be published in separate volumes, if there be an abundance of what is useful, or in the periodical works of the day, that thus "new

* In our Quarterly Summary will be found some account of several of the remaining papers of the volume under their appropriate heads.

facts may be recorded for the consideration of *the many*, who are devoting their time and talents to philosophical pursuits," and "that the mind of the world may be employed upon the observations of individuals."*

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*Case of Axillary Aneurism, successfully treated by tying the subclavian artery.*—*By* CHARLES ASTON KEY, Esq. surgeon to Guy's Hospital.

GEORGE VAUGHAN, a healthy man, aged 36, in the month of July, 1823, while making a sudden exertion with his right arm, felt something "snap" below his collar bone;—a pulsating tumour followed, which continued to increase in size, without much pain or inconvenience, or injury to his general health, until about the beginning of September; at which time *a surgeon* undertook to cure the disease by great pressure on the subclavian artery and the aneurismal tumour. From this experiment the hand and arm became œdematous,—the veins varicose, and the tumour enlarged, with a cessation of the pulsation. The pain was now unceasing, preventing sleep and causing great constitutional irritation.

On Friday, Sept. 20th, Mr. KEY, assisted by Mr. TRAVERS, secured the subclavian artery above the clavicle. The operation was, in most respects, performed in the manner usually directed. The chief difficulty arose from the tumour being so large as to elevate the clavicle "to the utmost," and to press it backwards towards the trapezius muscle.

One of the superficial varicose veins required a ligature. The artery was easily found, but the depth of the angle in which it was inclosed, rendered the division of about three quarters of an inch of the clavicular portion of the sterno-mastoid necessary, before the ligature could be passed. By means of an aneurismal needle, moderately curved and fixed to a handle,† the vessel was secured with a single silk ligature. In a short period after the operation, the œdema of the limb subsided, its natural warmth was maintained, and the pain which he had previously suffered, left him as soon as he returned to bed. In eight and forty hours

* T. W. CHEVALIER, p. 61 of the Vol. under notice.
† A plate is given of the needle and ligature.

there was a general excitement of the system with an acceleration of the pulse, which was easily removed by a cathartic. The ligature came away on the twelfth day, and the following day, for the first time, he was allowed to walk about the ward.

The tumour at this time, (Nov. 11th, 1823,) is subsiding, but the pulse at the wrist cannot be felt. In May, 1824, Mr. KEY could not detect the pulse; the patient was quite well, and gradually gaining the use of his arm, which was nearly as perfect as that of the other limb; a little hardness only remained in the situation of the tumour.

Among other remarks on this operation, Mr. KEY says, that the only circumstance which ought to deter a surgeon from putting a ligature around any artery in the human body, is the uniform cessation of circulation in the parts below the ligature. This is not the case as regards the subclavian operation. Here, the most common causes of death are suppuration in the anterior mediastinum, from violence done to the parts during the operation, and inflammation of the pleura, followed by effusion into the cavity of the thorax.

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*A Case of Pale Dry Gangrene—from injury to the blood-vessels of the lower extremity.* *By* THOMAS WILLIAM CHEVALIER, Esq.

ON the 5th of Sept. 1823, T. M., aged 32 years, of intemperate habits, received a contused wound in his left groin, followed by the loss of a pound and a half of dark coloured blood. The wound was parallel to POUPART's ligament, about three inches long, exposing the femoral artery and vein, and extending directly backwards, on the inner side of the great blood-vessels, for more than two inches.

On the 6th, he suffered from a "peculiar distressing sensation in his foot,"—the lower half of his leg was cold, pale and cadaverous, and there was no pulsation in the arteries of the injured limb. In the evening, the coldness had extended higher; but he could perceive the warmth of a hand, applied to the ankle.

*Sept.* 7. Coldness as high as the insertion of the ligamentum patellæ, and some discoloration of the limb at this spot; the pain in the shin is greatly aggravated by pressure in the ham.

*Sept.* 14. Discoloration more extensive near the knee; warmth of a hand still perceptible at the foot, and no vesication or inflammation: above the ankle, the skin is pale; the ankle and foot have gradually assumed a deep transparent colour, not unlike that of new mahogany, and not altered by pressure: the toes are dried and shrunk, and also transparent. *They never lost their cuticle.*

*Sept.* 18. He had suffered for three days, from febrile irritation, and from costiveness. The wound which had hitherto gone on exceedingly well in all respects, was now glassy, and discharged unhealthy matter. Some discoloration was evident above the condyles, and some increase of heat with slight redness and vesicles, below the knee. The limb was insensible to all impressions, excepting the warmth of a hand, which was now slow in being felt.

*Sept.* 20. Wound again granulating; and from this time, it retained a healthy appearance.

*Sept.* 23. A coagulum was discharged from the wound, followed by a venous hæmorrhage. The patient died the same evening.

*Dissection.*—The arteries near the wound, were all impervious; but the inguinal, the femoral, and the profunda veins, were found terminating by open mouths in the depth of the wound. Some traces of florid blood were found in the anterior tibial artery; while the femoral artery below the wound, was distended with blood of the deepest modena hue. The muscles of the leg were rather livid, but not at all disorganized.

Mr. Chevalier remarks, that the sensibility to warmth, just above the desiccated part of the foot, proves, that even to the last some degree of vitality remained in the *nerves.*

The desiccation of the toes, &c. should, perhaps, be attributed to some degree of activity remaining in the *absorbents*; as their cuticle remained on, retarding evaporation.

The pale or white dry gangrene, according to the observations of Mr. C.'s father and others, takes place only when the veins of the part affected are not obliterated; and on the contrary, the black dry gangrene is one result of the obliteration of both sets of vessels.

*Ulceration and Rupture of the Stomach. By* Dr. Elliotson.

At the present day, when so much importance is attached to inflammation and ulceration of the mucous tissue, cases similar to the present, acquire an unusual degree of interest.

On Monday, March 1st, 1824, an unmarried lady, about 40 years of age, was suddenly seized with a most excruciating pain in the epigastric. Dr. E. found her an hour afterwards "groaning with agony,"—features contracted—complexion cadaverous—hands blue, and of an icy coldness—general shiverings—pulse 120—breathing quick and sharp—nausea—occasional vomiting.

From the first, there was pain in the epigastrium on pressure; and this increased, although the constant agony remained as before. Laudanum was administered freely; at first, with no effect. Bleeding to ℥xx neither produced faintness, nor afforded the least relief; the blood did not become cupped or buffy. After the fifth dose of sixty drops of tincture of opium, she soon found herself considerably better.

*Tuesday.* Still better, but there is much tenderness of the abdomen and great thirst, although no foulness of the tongue; a large blister directed. Calomel, gr. x.

*Wednesday.* Tenderness very great, and all over the abdomen; pulse 120, small and feeble; coldness; dyspnœa; ghastly countenance; bowels not moved; tongue still clean; thirst great: "she had been incessantly drinking water so hot that no one but herself could hold the glass from which she drank it." Cal. gr. v—q. t. h. enemata of sulph. magnes. ℥iij. and ol. croton. gtt. iij. Vomited the calomel. The croton oil was then given by the mouth.

*Thursday.* One motion procured. "Her constant pain was infinitely less;" pressure tolerable, except at the epigastrium; pulse 140; restless; strength failing; several motions through the day. She expired at 5 o'clock, P. M.; perfectly sensible.

*Saturday. The body was opened.*—A large quantity of fœtid gas escaped from the cavity of the peritoneum. This membrane was very generally covered with a layer of fibrine, which could, in most places, be pealed off; some yellowish fluid was also effused; but none of the contents of the stomach could be seen. A circular aperture, large enough to admit the end of the little finger,

with a smooth edge, and with the surrounding parts of a dark colour, was perceived on the anterior and upper portion of the cardiac half of the stomach. On the interior, a large ulcer was discovered, two inches in length, with smooth edges, and the surrounding parts were greatly thickened, very red, and hard. The rupture occurred at the broadest portion of the ulcer.

For several months previously, this individual had been greatly troubled with dyspepsia; was often observed putting her hand to the pit of the stomach; and was in the habit of relieving her uneasiness "by copious draughts of *hot* water."

References for similar cases, are made to the Ed. Med. and Surg. Jour. Jan. 1824,—to the Revue Med.; Mars, 1824—to Medical Communications, Vol. II. p. 467, for 1790—and to the 8th vol. of these Transactions; in which last, Mr. TRAVERS states the "diagnostic symptoms to be, 1st, sudden, most acute, peculiar, and *unremitting* pain; radiating from the pit of the stomach to the circumference of the trunk, and even to the limbs. 2ndly, Coeval *rigidity of the abdomen.* And 3dly, A *natural pulse* for some hours, until the symptoms of peritonitis begin."

In this case, the pain did remit; the rigidity of the abdomen was not evident; and the pulse was 120 from the first.

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In our first number, at page 139, will be found an account of *the deductions made by* Dr. JOHN BOSTOCK, *from numerous and accurate experiments on the animal fluids during the influence of mercury on the system.* For the details, which are well worthy of perusal, we must refer our readers to his paper in the volume under review.

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*Case of Fungus Hæmatodes of the Brain. By* JOHN HUNTER, Esq. Jr.

THIS is a useful case for the attention of the pathologist, and especially for the inquirer into the healthy and diseased operations of the nervous system.

We have space merely to observe, that the disease, which subsequent dissection manifested to be chiefly seated in the thalami nervorum opticorum, whose texture was entirely converted

into the *fungous* substance resembling coagulated blood, produced *various nervous affections and organic alterations, in different and apparently unconnected parts of the system*, and that death resulted, under circumstances of great emaciation and exhaustion, nearly four years after the commencement of head-ach, and two years from the first attack of convulsions.

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*A new preparation of the Croton Tiglium. By the late* J. Pope, Esq.

From numerous experiments, Mr. Pope discovered that the shell of the seed, especially the epidermis, contains the acrid irritating property which forms the principal objection to the use of this oil. This observation is confirmed by the practice in India; where the natives always employ the medulla alone. He was hence induced to prepare an oil from the seeds deprived of their husk and epidermis, which has been found on trial as effectual as the common preparation in evacuating the bowels, without causing any irritation.

The form, however, which he particularly recommends, is the *Alcoholic Tincture* of the seeds. Take of the

Seeds of croton tiglium, carefully deprived of the husk and epidermis, and bruised, two ounces.

Alcohol (sp. grav. 836,) twelve ounces—digest for six days and strain. Dose for an adult, 20 minims.

Croton tiglium is admitted, after ample investigation by eminent veterinary surgeons, to be the best known purgative for horses.

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*On the Diagnosis of fracture of the neck and upper part of the thigh-bone. By* George James Guthrie, Esq.

After noticing the commonly received diagnosis of fracture of the neck of the os femoris, and also of dislocation upwards and backwards, and directly backwards, Mr. G. directs our attention to the state of the foot, as to its eversion or inversion, as indicative of the nature of the accident.

The occasional inversion of the foot in fractures of the neck, was first noticed by Pare, and confirmed by Petit;—it was denied by

Louis, and more lately by Boyer, but Dessault met with it frequently; he averages its frequency as one to four. It is commonly believed that in such cases the fracture must have occurred near the head of the bone, so that the portion of the cervix attached to the trochanter, passed behind the upper portion; or, that the capsular ligament being torn, it passed backwards, behind the acetabulum; in either case, causing an inversion of the great toe.

These notions are contradicted by the fact that the inversion continues after the limb has been restored to its proper length, and also by dissections. Thus Mr. Langstaff mentions a case, in which the toe was first everted, and afterwards turned inwards when the patient began to use the limb. Dissection, in this case, discovered the fracture to have been within the capsular ligament, near the head of the bone, but the lower portion of the cervix had been absorbed.

In a case also in which Mr. White, of the Westminster Hospital, removed the head, neck, and part of the trochanter of the left thigh-bone, for a scrofulous disease of the hip-joint, attended with an abscess, the toes of the shortened limb turn inwards when the patient is at rest on his back, or in motion.

Mr. Guthrie has met with two cases of *inversion*. In the first, it appeared on the second day of the treatment; the lady recovered with lameness, and the foot in a natural position. In the second, a corpulent female, aged 90 years, fell from a high stool on her left hip, and suffered considerable injury. The limb, at the expiration of two days, was shortened more than half an inch, and the toe turned inwards, although less than in dislocation; there was no crepitus. In forty-four days she died, and on dissection there was found a diagonal fracture, extending from the upper and outer part of the trochanter major to the trochanter minor, so as to leave the muscles of rotation, the quadratus, the gemelli, &c. attached to the upper fragment. The glutæus medius retained the two fragments in contact, being inserted into each; the capsular ligament was uninjured; the little trochanter was broken off, and with it the insertion of the psoas and iliacus muscles. There was no attempt at reparation.

From this case he infers, that whenever a fracture occurs, so "as to be external to the insertion of these rotators outwards, yet

sufficiently within the insertion of the glutæus medius and minimus, so as not to deprive them of their due action, (as in the above case,) the toe will be turned inwards, and must always be so; or remain without any alteration of position, according to certain variations in the inclination of the fracture, affecting the power of these muscles." The breaking off the little trochanter may have facilitated the inversion of the foot. Is this an essential circumstance in this kind of accident?

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*On the Effects of Loss of Blood. By* MARSHALL HALL, M. D. F. R. S.

THE novelty and importance of the subject here treated, induce us to analyse this paper rather more minutely; although no condensed account can do justice to its accurate author, whose opinions and observations on this point deserve a careful and conscientious examination. The assertion, which we verily believe to be true, *that the obvious effects of a loss of blood, often suggest the idea of increased power and energy of the system, and lead to an erroneous and dangerous employment of the lancet, when a directly opposite treatment is demanded*, should, if verified, be always borne in mind by the medical practitioner.

Dr. HALL treats, first, of the immediate effects of a loss of blood, chiefly syncope, and of the re-action or failure of the vital powers.

He accurately describes the phenomena of syncope, and intimates, that the brain is the organ whose function is first impaired. In profuse hemorrhage, there is, at one moment, a degree of syncope; then a partial recovery, especially if vomiting supervenes. In fatal hemorrhage there is no amelioration; every thing denotes an impaired state of the energies of the brain; although conscientiousness often remains until towards the last, when there is some delirium; and although the voice may be strong, and there be constant restlessness and jactitation. Sometimes, instead of syncope, *convulsions* result from a loss of blood, as has been noticed by Dr. KELLIE,—Ed. Med. Chir. Trans. Vol. I. p. 105; and Dr. ARMSTRONG states, that fatal convulsions have followed bleeding to syncope, in young children. We have seen cases corroborative of these remarks; and in A. COOPER'S lectures,

by TYRREL, Vol. I. a case is recorded of injury of the head, in which venesection induced convulsions.

From syncope, the system generally *re-acts*. This re-action is sometimes defective; often excessive; or it may be destroyed altogether. It is on the symptoms of excessive re-action after profuse bleedings, that we would wish to fix the attention of our readers.

"The state of excessive re-action is formed gradually, and consists, at first, in forcible beating of the pulse, of the carotids, and of the heart, accompanied by a sense of throbbing in the head, of palpitation of the heart, and eventually perhaps of beating or throbbing in the scrobiculus cordis, and in the course of the aorta. This state of re-action is augmented occasionally by a turbulent dream, mental agitation, or bodily exertion. At other times it is modified by a temporary faintness or syncope. In the more exquisite cases of excessive re-action the symptoms are still more strongly marked. The beating of the temples is now accompanied by a throbbing pain of the head, and the energies and sensibilities of the brain are morbidly augmented. Sometimes there is intolerance of light, but still more frequently, intolerance of noise and disturbances of any kind, requiring stillness to be strictly enjoined, the knockers to be tied, and straw to be strewed along the pavement. The sleep is agitated and disturbed by fearful dreams, and the patient is liable to awake in a state of great hurry of mind, sometimes almost approaching to delirium. In general this is slight, but occasionally severe and even continued. More frequently there are great noises in the head, as of singing, of crackers, of a storm, or of a cataract; in some instances, flashes of light are seen. Sometimes there is a sense of great pressure or tightness in one part or round the head, as if the skull were pressed by an iron nail, or bound by an iron hoop.

"The action of the heart and arteries is morbidly increased, and there occur great palpitation, and visible throbbing of the carotids; and sometimes even of the abdominal aorta, augmented to a still greater degree, by every hurry of mind or exertion of the body; by sudden noises or hurried dreams and wakings. The patient is often greatly alarmed, and impressed with the feeling of approaching dissolution. The state of palpitation and throbbing are apt to change, at different times, into a feeling of syncope. The effect of sleep is in some instances very extraordinary; sometimes palpitation, at other times a degree of syncope, or an overwhelming feeling of dissolution. The pulse varies from 100 to 120 or 130, and is attended with a forcible jerk or bounding of the artery.

"The respiration is apt to be frequent and hurried, and attended with alternate panting and sighing; the movement of expiration is sometimes obviously and singularly blended with a movement communicated by the beat of the heart; the patient requires the smelling-bottle, the fan, and fresh air.

In this state of exhaustion, sudden dissolution has sometimes been the immediate consequence of muscular effort on the part of the patient.

"The phenomena of excessive re-action are mostly observed in young persons of robust constitution, who have been subjected to repeated blood-letting. In infants, in feeble persons, and in rather advanced years, re-action after loss of blood is, for the most part, *defective*. In this case the patient long remains pale, thin, and feeble, and becomes faint on the slightest occasions; the pulse is frequent, but feeble and perhaps irregular, and we look in vain for the throbbing and palpitation observed in the young and robust."

Each of these states of the system, exhaustion with excessive or with deficient re-action, may gradually yield to returning health; or subside into the state of sinking; this last is described in the following manner.

"The sensibilities of the brain subside, and the patient is no longer affected by noise as before. There is, on the contrary, a tendency to dozing, and gradually some of those effects on the muscular system, which denote a diminished sensibility of the brain, supervene, as snoring, stertor, blowing up of the cheeks in breathing, &c. instead of the hurry and alarm on awaking, as observed in the case of excessive re-action. The patient in the state of sinking requires a moment to recollect himself and recover his consciousness, is perhaps affected with slight delirium, forgets the circumstances of his situation, and, inattentive to objects around him, falls again into a state of dozing.

"Not less remarkable is the effect of the state of exhaustion with sinking, on the functions of the lungs. Indeed the very earliest indication of this state is, I believe, a crepitus in respiration, only to be heard at first on the most attentive listening. This crepitus gradually becomes more audible, and passes into slight rattling, heard in the situation of the bronchia and trachea. There is also a degree of labour or oppression in the breathing, inducing acuteness in the nostrils, which are dilated below, and drawn in above the lobes at each inspiration; in some cases there is besides, a peculiar catching laryngal cough, which is especially apt to come on during sleep, awaking the patient. The heart has, at the same time, lost its violent beat and palpitation, and the arteries their bounding or throbbing. The stomach and bowels become disordered and flatulent, and the command over the sphincters is impaired. The last stage of sinking is denoted by a pale and sunk countenance, inquietude, jactitation, delirium, and coldness of the extremities."

The third set of phenomena noticed by Dr. HALL, are the effects of a further loss of blood, in cases of exhaustion.

The symptoms of *exhaustion with re-action*, have often been mistaken for those of *inflammation*, or other disease of the head,

or of the heart; and the lancet has been employed by the inexperienced, even with a full relief to all the symptoms by the substitution of syncope. This relief is but temporary; for when the state of faintishness gives way to the rallying and re-action of the vital powers, the apparent benefit of the bleeding disappears.

"Another circumstance, equally interesting and curious, is, that within certain limits the remedy which relieves for a time, eventually only adds to the severity of the malady, which is apt to return after a certain period, in a still more aggravated form. It is natural, indeed, to suppose that, unless where there is a tendency to failure of the vital powers, the re-action of the system and the painful circumstances attending it, would be greater after a third or fourth loss of blood, than after a first or second. Indeed there are seldom symptoms of re-action after one flow of blood, however great or profuse. The repetition or protraction of the cause is essential to produce this effect. It is observable, too, that in cases of exhaustion with re-action, syncope is very soon produced by the further loss of blood. This fact is of importance, because it may be regarded as a *sign* of the state of exhaustion when obscured by the re-action of the system, and as a warning voice against the further and inconsiderate use of the lancet.

"If the loss of blood be repeated still further, not only syncope, but a state of sinking is induced; the effects of re-action are, of course, in this case, permanently relieved; whilst a different series of phenomena, already fully described, is established. This transition of re-action into sinking, may either be spontaneous, or it may be the effect of a last bleeding, the state of syncope scarcely ceasing, with a total though gradual failure of the vital powers."

These effects of the loss of blood are influenced by various circumstances. Re-action is usually proportionate to the degree of *strength*; hence, in infants, in old people, &c. there is *defective re-action*; with them a state of syncope is a state of danger, and a second or third bleeding is borne with difficulty. Certain *states of disease*, have also an important influence.

"And I must, in this place, particularly remark, that the state of intestinal irritation leads to those effects of blood-letting which I have described as exhaustion; whilst inflammation seems to protect the system from the effects of loss of blood. In the former case, throbbing is soon induced, unless indeed it be prevented by a state more nearly allied to syncope; in the latter, blood-letting is followed by little of re-action until the state of inflammation be subdued, and the system freely exposed to the uncontrolled influence of loss of blood. In the former, there is danger from full depletion; in the latter, this measure is providentially not less safe than necessary."

Dr. HALL concludes his valuable paper, by alluding to the ef-

fects of the loss of blood on the internal organs; on which, and on the *remedies* suitable for the several states of the system above described, we may expect some further communication, resulting from a series of experimental investigations.

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*Case of Carotid Aneurism—successfully treated by tying the artery above the tumour.* By JAMES WARDROP, Esq.

THIS method of operating for aneurism was originally suggested by DESSAULT, in cases where the common method is inapplicable. He was led to it by reflecting on the manner in which aneurismal tumours are cured by a spontaneous or artificial obstruction of the affected artery, followed by a coagulation of the blood in the sac, and its subsequent absorption. This obstruction, he imagined, might be made with as much advantage beyond the tumour, as between it and the heart; for in either case, the circulation would be arrested in the vessel operated on.—"The only circumstance which must be considered as indispensable to the success of this mode of operating is, that there be no vessel arising, either from the sac itself, or from the artery between the sac and the ligature, *sufficiently large* to keep up the circulation of the blood through these parts, and thus prevent its coagulation." We may observe, that as it would be impossible to ascertain before an operation, whether such collateral branches existed or not, this suggestion ought never to be enforced where the common operation is practicable. In other cases it promises to be very useful.

The operation of DESSAULT has been executed but three times; the first was for a femoral aneurism by DESCHAMPS; the second for an iliac aneurism by Sir A. COOPER; in both of these with an unfavourable result; the third, and the only successful one, is now presented to the profession by Mr. WARDROP.

"A lady, 75 years of age, after a very violent fit of coughing, perceived a swelling on the right side of her neck, a little above the clavicle. When I saw her eight days afterwards, the tumour had all the characters of an aneurism of the carotid artery, and had become as large as a fist; but was so situated that it was quite impracticable to tie the vessel below the tumour, so closely did it come in contact with the clavicle. The tumour continued to increase in size, and on the eleventh day after it was first observed, it had acquired a formidable aspect, the scapular portion having become

very red and painful, the pulsation, which was very strong throughout the whole swelling, being here particularly so, and the parietes feeling extremely thin, and as if ready to burst."

The operation was performed by making an incision on the tracheal edge of the mastoid muscle, and passing a single ligature under the artery before its bifurcation. The consequences of the operation are thus detailed:

"There was an immediate decrease in the bulk of the tumour; marked by a considerable corrugation of the skin at its base, as well as a diminution of its redness. The ligature of the artery did not seem to produce any change in the mental functions, or any unnatural feelings in the head; on the contrary, the patient passed the night after the operation more comfortably than that previous to it, the tumour being accompanied with less uneasiness.

A progressive diminution in the bulk of the aneurism, and in the strength of its pulsations took place, so that on the fourth day after the operation it seemed to have diminished nearly one third in its bulk; the upper and tracheal portions had lost all pulsation, and only the scapular portion retained an obscure undulatory thrill. The integuments, which had lost their redness, now evidently became more inflamed, and during the fifth and sixth days there was a distinct increase in the size of the tumour, and it pulsated more strongly, which seemed partly owing to several severe fits of coughing. This apparently unfavourable change was, however, followed by a decided amendment; and eight days after the operation the swelling again began to diminish, and the pulsation became more obscure, so that on the fourteenth day it was not much larger than half its bulk at the time of the operation, and no pulsation could be detected in any portion of it; merely a slight vibration in some parts, which seemed to be produced by the pulsations of the contiguous vessels, which were now enlarged, particularly the inferior thyroid artery.

The redness of the skin, however, continued to increase, and that of the scapular portion of the tumour to become more and more of a purple colour, till at last, ulceration commenced on the most prominent part. Several considerable-sized portions of coagulated blood were discharged along with some healthy pus through the ulcerated opening; and on the 20th day after the operation, the ulceration of the integuments had closed, and nothing of the tumour remained, but some wrinkling of the skin, and a considerable degree of thickening of those parts on which the base of the tumour had rested. These continued to diminish, and at the end of the fifth week, from the time of the operation, the neck had nearly resumed its natural form, a slight degree of inequality only remaining; the ligature had come away, and the patient's general health, to the management of which the greatest care had been bestowed, appeared now to be completely re-established."

*Case of Hydrophobia.* By GEORGE GREGORY, M. D.

In this instance a man, aged 28 years, was bitten on the 2nd or 3d of May, 1825, by a dog apparently healthy. On Friday, the 10th of June, about thirty-nine days after the accident, the symptoms of this terrible malady appeared, and rapidly increasing in violence, proved fatal on the following Tuesday. The symptoms were those of great nervous irritability and agitation, with soreness of the throat; occasional dyspnœa with a sense of suffocation; dread of water and of a current of air; great difficulty of deglutition; and finally convulsions.

Dissection on Wednesday, June 15th.

"The spinal marrow throughout its whole extent was perfectly free of disease. There was some slight effusion of serum on the surface of the brain, and about three or four tea-spoonfuls of serum were contained within the ventricles. The choroid plexus was turgid with blood, and two very small soft tumours were found attached to it.

The stomach and bowels were in a healthy state. The lungs were of a remarkably dark colour, as if gorged with venous blood. The whole body, it may be noticed, had become livid with remarkable rapidity, and to a very uncommon extent.

The pharynx, epiglottis, and larynx—the œsophagus, for about the first three inches of its course—and the trachea, throughout its whole extent, appeared internally of a coffee-ground colour, or almost black. This blackness remained after the parts had been freely sponged. There was no thickening or swelling of the parts about the glottis. The structures were firm, nor could I detect any breach of surface in the affected membrane. I have since been informed, however, that an abrasion of the cuticular lining of the membrane was noticed about half an inch below the pharynx.

The inner coat of the aorta, and large arteries immediately proceeding from it was of a bright scarlet colour. The heart and pericardium were healthy.

In some concluding observations, Dr. GREGORY delivers the following opinion of the nature of the disease.

"Fully sensible as I am that a high degree of nervous irritation is the predominant feature of the symptoms during life, and that the appearances which present themselves after death (as hitherto observed) possess no common character, yet it is impossible, I think, in any reasonings concerning this particular case, to avoid associating together the *sore-throat* which characterized its early period, the *dread of water* which indicated its confirmed stage, and the peculiar appearance about the *throat*, which were demonstrated upon dissection. These phenomena tend to the conclusion that

the symptom which gives name to the disease, is directly dependent upon some form of inflammatory action in the larynx and pharynx, and that the true nosological situation of hydrophobia is in the genus cynanche."

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The concluding paper of the volume is interesting, as *five cases of Hydrophobia, caused by the bite of a wild Jackal in a rabid state, are detailed by* M. HEWITT, Esq. of the Bombay Establishment, in the East-Indies.

These cases occurred about a month after the individuals were bitten, and in all of them the symptoms were very similar. "The affection of the glottis was always predominant, and next that of the pit of the stomach. Deglutition was always much dreaded and difficult; and great mental anxiety was present."

Four out of the five individuals affected died, but unfortunately no account is given of the post mortem appearances. The patient who survived, was apparently saved by the early and free employment of *mercury*, internally and externally, by which a copious salivation was induced. This plan was tried in the fifth case, but made no impression on the system, probably from the disease being too far advanced.

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ARTICLE XIV.—*Histoire Naturelle et Medicale des Sangsues, contenant la description anatomique des organes de la Sangsue officinale, avec des considerations physiologiques sur ces organes, des notions tres étendues sur la conservation domestique de ce ver, sa reproduction, ses maladies, son application, &c. &c.* Par J. L. DERHEIMS, Pharmacien, Chemiste, &c. avec six Planches. Paris, 1825, 8vo. pp. 165.

WE are induced by the unaccountable and blame-worthy neglect with which one of the most important therapeutical agents has been treated in this country, to notice the work of Mr. DERHEIMS, the title of which stands at the head of this article. With an abundant supply of leeches in the ponds and streams of the United States, we may well feel a sort of astonishment at the circumstance of the general disregard of their sanative powers, which in Europe, are already looked upon as among the most efficient

and decided of all the resources of the physician. We may say the general disregard, for while we are ignorant of the extent to which they may be employed in Boston, and the other cities and towns of New England, we are informed, that they are comparatively overlooked in New York, since that city is principally dependent on a foreign supply, which has never been very abundant, and is, moreover, furnished at a very considerable expense. We shall not err, if we say that in the southern cities and towns, the use of the leech is almost never resorted to in the treatment of disease.

In Philadelphia, the supply of indigenous leeches is fully equal to the demands of the profession, and may be stated at about 150,000 per annum. The "leechers and bleeders," of this city, generally have on hand a sufficient number during both winter and summer; though in dry seasons, they are more scarce than in others, which are favourable for the business of collecting them. We know that one gentleman, whose skill in their domestic preservation and their medicinal application, has given him a justly merited distinction in this business, procures about 30,000 of these animals in each year, and as many other persons keep them always on hand, some to the amount of 10,000 per annum; we suppose that our statement of 150,000 is nearly correct. In the hands of such as are very skilful, many of these can be made to act a second or third, and even a fifth or sixth time. Hence it is evident, that the medicinal application of the leech, is a very familiar practice in Philadelphia.

We are unable to state the price at which leeches are sold in Paris. Twelve or fifteen months since, two persons arrived in New York, bringing with them for sale, about 20,000 of these animals, and we heard that some of them were offered here at forty cents a piece, which being refused, they were subsequently re-shipped to Havanna. In London, the leech when applied, sometimes cost a guinea for each one.* In Philadelphia, the charge for a leeching, is from two to three dollars, when from 12 to 40 or 50 of them are employed; a larger number cost a higher price, though we have seen 60 or 70 applied for three dollars.

We are informed, that there is no professed leecher in Balti-

* Vide Dict. des Sc. Med. Article Sangsue, p. 527.

more, and that a very skilful person who settled there not long since, was obliged to return here, for want of patronage in that line of business. One of us resided six years in a southern city, with a population of 6 or 7000 souls; and he believes, that during the whole of that period, though there was a vast amount of medical practice, not one single leech was employed.

If the revolution in medical principles and practice, which has found so many supporters in France, and which begins to extend itself in this country, should meet with further support and favour here, the consumption of these animals must become more considerable and general, every where through our widely extended territories. That doctrine has had a great effect in increasing their sale in France, as we are informed by Mr. DERHEIMS, who says that

"Leeches in becoming one of the most powerful arms of a medical doctrine, have also become the source of a very considerable trade,—no one is ignorant of the numbers of these animals which are employed in France for some years past,* or of the no less considerable amount of them annually exported." p. 72.

We receive some in this country from France, Spain, Portugal, and Italy, but our best leechers are satisfied with those of our own waters, and find that they, in general, answer nearly as well as the foreign sorts, and can be afforded much cheaper. Forty leeches at forty cents each, would amount to sixteen dollars. If, besides this, we consider the risk of disease and death which *frequently* follows their gorged state, we may conceive that they could not be sold by our leechers at less than sixty cents each, and twenty of them could hardly be applied for less than ten dollars; the loss by death is so very great. Twenty French leeches might take about ℥xx. of blood—our own do not take so much; but from vascular parts of the skin, the bleeding by them is often very free. Mr. RIPPERGER measured on one occasion ℥xxiij. of blood which flowed from seventeen bites, made by American specimens: probably hirudo decora.† This is an extreme case, for the majority of them take from two to three drachms each, which is usually considered in the prescription for their employment.

* Mr. MERAT, in the article Sangsue Dict. des Sci. Med., says that the accounts of the Parisian Hospitals, show an annual consumption of several hundred thousands.

† H. Decora, (decorata) of Long's 2nd Exped. v. 2. 268.

Mr. DERHEIMS states, that a middling sized officinal French leech, weighing about one drachm, will abstract upwards of seven drachms (30 grammes) of blood.

It has been commonly supposed that only two sorts are employed in practice, to wit, the officinal and the black leech,* but Mr. DERHEIMS asserts, that many other sorts are constantly used and sold in France. He gives the following list of useful sorts:

1 Hirudo Officinalis, 2 do. Sanguisuga, 3 do. Octoculata, 4 do. Complanata, 5 do. Stagnorum, 6 do. Geometra, 7 do. Swampina, 8 do. Muricata, 9 do. Alpina.

Of all these he gives some description, but of none so fully as of the officinal species.

"The form of this endo-branchial worm may be considered, says he, in two different states; when contracted it presents a body almost ovoid, when elongated the body is flattened; in its maximum state of elongation it becomes a cylindrical tube, the head of which can, with difficulty, be distinguished from the posterior extremity. The back of the officinal leech is black, with yellow rays, the belly yellowish, spotted with black. These parts are clearly defined, the first being almost plane, the second convex; each extremity is furnished with a cup, (ventouse,) the functions of both of which shall be examined. Finally, considered as a whole, the animal is a protractile tube, formed by the union of a number of rings, sheathed in a common envelope, and lined with a mucous substance, which may be regarded as a peculiar matter proper to the leech." p. 11.

The natural habitation of this kind he supposes to be pure still waters, as fresh ponds, for they reside there in great quantities; and if they are sometimes found in running streams, it is rather accidental than natural for them. 12.

Though they are denominated aquatic worms, water should not be considered as essential to their existence, for they live a long time in moist ground or mud, or in moss, impregnated with water. We have seen a proof of the propriety of this remark in a reservoir of these animals, containing several thousands, and consisting only of a humid earth, mixed with rushes and moss, in which they burrow like earth worms, and are dug out for use. Mr. DERHEIMS says, they frequently perish if deprived entirely of earth; whence he infers, that water serves to maintain their suppleness, by keeping the mucus with which they are invested, of a proper consistence, and a due condition of which is essential for

* Vide Parr's Med. Dict. and Dict. des S. Med.

their health and existence. The officinal sort is rarely met in company with other species. The hirudo sanguisuga is occasionally met with it, but not in considerable quantity. Both kinds leave the streams and ponds, to crawl over the damp meadows, and sometimes in stony places, where they attach themselves to the udders of cows, and the genitals of the horse—they also suck toads and snails, and even each other. These expeditions are generally made after sunset, and principally by the officinal leech. 13—14.

"The black leech H. Sanguisuga is long, of a greenish black colour, spotted with deep black, the belly is entirely black, the lateral lines yellow; it is more protractile, and less contractile than the officinal sort. Its back is flatter—it inhabits ponds and still waters, and was formerly considered poisonous, an opinion which we shall presently refute." 19.

This is the leech which is called by PARR the horse leech; but Mr. D. does not agree with him that it should be so called. He says that some years since the hirudo officinalis only, was employed in medicine: the scarcity of the species has now dissipated the vulgar prejudice, that the other sorts are poisonous, and at present, an indiscriminate use is made of the complanata, octoculata, and even sanguisuga; they are all sold either in common with the officinal species, or alone, at a lower price, for the latter will always merit a preference.

Our limits will not permit us to follow Mr. D. through all his observations on the senses of these worms, some of which they possess in a high degree; neither can we trace with him their anatomical structure, their diseases, and mode of reproduction; we shall proceed therefore to topics of more immediate importance.

"It is true, says he, in accounting for some embarrassments in their use, that the application of the leech is often confided to improper persons, who are strangers to any surgical knowledge, and that squeezed in the callous skin of their fingers, they suffer much distress, and refuse to take hold; but this is not the only cause of their refusal to bite; the neglect of attention to cleanliness of the skin on which they are placed, contributes a great deal to this refusal. We know enough of the nature of the perspiration, to allow the supposition that it exerts a very decided chemical action, on the nervous papillæ of the leech's mouth. The condition of the animal ought also to be considered, for it is sometimes in a state wholly unfit for suction." p. 122.

This unfitness results from the loss of its teeth, in the manner

to be hereafter shown, and to its being preserved when already gorged by the improper bait which has been used in catching it, &c.

Complaints were laid before the French police on the subject of these embarrassments, and disappointments; a committee of the Royal Academy consisting of M.M. PELLETIER and HUZARD fils, was appointed on the following questions.

"Why are the wounds made by leeches sometimes poisonous? and 2nd, Why do leeches sometimes refuse to attach themselves to the skin? Their report, which was adopted, contained the following conclusions:—1st, If the wound produced by the leech ever becomes poisoned, it is owing to the constitution of the patient, or nature of the disease. 2nd, If leeches when applied, refuse to attach themselves to the skin, it is owing to their having lost their teeth." 123.

The officinal leech has three teeth, which may be seen within the upper disc or cup. These are sharp and tolerably stiff, and attached to a sort of circular basis, from which they are easily torn off, by pulling away the animal when it is in the act of suction. These teeth penetrate the skin vertically, and swell when inserted, so that they are sure to be left in the wounds, if any force is used to pull them off. 124.

Mr. DERHEIMS has tried this experiment, and found such to be the result; which, besides occasioning inflammation by the presence of an extraneous body, causes the destruction of the worm, as far as any future employment of it is concerned; such a leech could never bite again. Mr. DERHEIMS, from his anatomical investigations, is led to believe, that the leech cannot feed except with its teeth *inserted* into the substance it feeds on; and therefore the custom of smearing the surface to be bled, with sugar and water, or blood, is useless, as far as any baiting or quickening of the appetite is intended. The only benefit of this practice, consists in the increased facility of glueing the disc or cup, to the surface, which allows the suction to be more complete, on smooth and moist surfaces. Sugar and water answer very well for this purpose, but cream, or any unctuous matter disgusts them. 126.

The most certain method of causing them to bite is to soften the skin, and clear it completely of all perspirable matters; for this purpose a solution of soap should be used, and followed by plenty of tepid water, after which the skin should be wiped dry

with fine soft linen. The leeches should be of a medium size, and well selected; the largest ones are often without teeth. They should be taken out of the water sometime beforehand, not, as vulgarly supposed, to make them disgorge, but in order to accustom them somewhat to the influence of the air, and even to the temperature of the patient's apartment.

When voracious, they may be applied to the part by being held slightly in the fingers, one by one, but very tenderly. Or they may be put in a glass goblet, covered all except one edge with a piece of linen, and the whole applied close on the spot to be bled. As they will not stick to the polished glass, or to linen, they are in some measure forced to attach themselves as the surgeon pleases to the skin. With good leeches this method is almost infallible. 127.

Where the patient's skin is very hot, he recommends that they should be brought to a temperature of about 88°, by means of tepid water poured over them. 128.

When they are to be applied to the anus, great care must be taken to have the part washed very clean, and rendered soft by warm water. Sometimes the hair disturbs them, and it should, therefore, in such cases, be shaved off from the part. 132.

While sucking, especial care should be used not to touch or disturb them, or they will immediately let go; neither should the patient be placed too near the fire, as any considerable warmth makes them fall off. 133.

They should always be allowed to fall off of their own accord. The bad effects of forcibly abstracting them, or of cutting them in two, or using any stimulating applications, have been referred to. 135.

Such as fall off spontaneously, may be used a second time, for they remain possessed of their teeth: they should be put in a weak solution of salt in water, to make them discharge the blood they have ingorged. Some leeches which have been carefully disgorged, have been employed six or seven times equally well. 136. In this country oftener.

Mr. Derheims does not approve of the practice of cutting off the lower extremity of the leech, while in the act of sucking, because in a majority of cases it will immediately drop off: but, we are informed by Dr. Richie of this city, that when he resided

at the Pennsylvania Hospital, he commonly practised this method, whereby the leech emptying itself as fast as it drew the blood, continued its suction until it was taken off by the operator. Where the animals are scarce, such a practice is of great value and importance.

In catching leeches, the best, and safest method is to take them by hand, but as this is not always practicable, a net may be used, consisting of a coarse hair cloth stitched on a wooden circle, with sinkers of lead fastened on at proper distances apart; the net is then secured by a number of strings, so as to hang at the end of a convenient sized fishing pole. This instrument carried into the water in an oblique direction, may be passed under the leeches, which are thus taken without injury. They should then be put into jars containing a sufficient quantity of wetted moss (sphagnum.) They are also taken in France by means of pieces of calves liver thrown into the pools, to which the animals come and attach themselves, but such as are thus taken, are not so good, being already gorged by the bait. 74.

They are commonly carried for sale in earthen jars, or little casks, or runlets of wood, or in hair cloth bags, always however, accompanied with moss, well moistened; or small bits of sponge, as when sent for sale beyond sea. 76.

Leeches sometimes keep very well, but on other occasions they perish in great numbers, for besides the atmospheric changes to which they are very sensible, they are subject to several diseases not dependent on this cause. 77.

The first thing to be observed in regard to their domestic preservation, is not to interfere too much with their locomotion. Too many are commonly crowded together in small jars, a circumstance which contributes a great deal to their destruction. When obliged, however, to keep them crowded together in this manner, the water should be frequently changed, using great care not to wound them. On these occasions they should be cleansed of the mucus which adheres to them; without being freed from this mucus, no leeches can be healthy, and hence the value of the moss so often spoken of, by crawling over and through which, they are able to disembarrass themselves. They should not be covered with too thick a cloth. 78. The dead ones should be carefully removed, always. Mr. DERHEIMS gives very abundant and satis-

factory details of the method adopted for preserving them in large quantities, but we have not space enough to permit the exposition of this interesting information here.

It sometimes happens that an epidemic disease appears in the reservoirs of leeches, on which occasion they perish in vast numbers. In general it is best under these circumstances, to place a quantity of charcoal in the water wherein they are kept, in order to disinfect it. For this purpose let the bottom of the reservoir be covered with small bits of charcoal, which may be kept down by covering it with a layer of moss, over which a number of pebbles should be strewed. When considerable numbers are sick, let them be well washed in several waters, then be placed in a separate wide mouthed vessel and covered with powdered charcoal; after being left in this state three or four hours, water may be freely added; they are next to be lifted carefully out, exposed to the air for a few minutes, and then may be safely committed to their cleansed habitations floored with charcoal, moss, and pebbles, as above. 99.

As a proof of the disinfecting power of charcoal used in this way, Mr. D. informs us that not long since, a dealer wrote to him from England, that for two weeks past she had lost from 150 to 200 per diem, out of a reservoir which originally held 10,000; while from another, containing 20,000, she lost only a few each day. Mr. D. advised her to place the sickly ones for a few hours in a small quantity of water, and to cover them with pounded charcoal, after which she was to wash them in several waters. This was punctually executed; the next day only nine died, and three on the following day. His account of the use of charcoal is very interesting.

We must again express our regret that our prescribed limits do not permit a larger extraction from Mr. D's treatise. The facility with which the leech may be procured and preserved and applied, together with the immensely beneficial results of its frequent employment in medicine, induce us to hope that the reproach of neglecting it, may not much longer be justly urged against our American brethren. If our Journal could exert any influence in establishing the practice in this country, we should consider it as meriting all praise for so important a service to the profession. In the mean time, we beg leave to urge on the friends of medical

improvements, the propriety of shaking off this long and strange apathy in regard to the employment of the genus hirudo. If it be objected that the preservation and application be troublesome, we can only answer that the life of the physician is necessarily one of toil, privation and self denial, but the duty of seizing every opportunity of doing good is paramount to all considerations of personal convenience. It is in vain that the exculpatory argument is urged, that the cup and scarificator are powerful agents; we admit that in many cases they are preferable to the leech, but in a vast number of instances there is no succedaneum for these useful animals, no efficient practice without them. The facility with which they can be transported by land or water, will enable practitioners, who do not choose to take the trouble of causing them to be collected in their own neighbourhood, to procure them in this city and New York, which we presume would be easily effected by applications made to the druggists. A leecher here says that he selected one hundred specimens, out of about 500, which having been rejected at the Pennsylvania Hospital, were apparently in a dying state, and applied them 8 or 9 times in succession, whereby he received a considerable profit. A small supply, which should be *carefully* attended to, by changing their waters frequently, and allowing them some sponge or wet moss to clear off the mucus with, would last a considerable time, though as before stated, many of them perish in consequence of being gorged.

We shall here take leave of the subject for the present, in hopes of being enabled on a future occasion, to press the arguments for their more enlarged introduction and employment in the practice of physic and surgery.

In order to make the leeches disgorge
their application, subject for 2 or 3 min
a solution of one part of common salt
ten of water -

## MEDICAL LITERATURE.

### RETROSPECTIVE REVIEW.

ARTICLE XV.—*A concise exposition of the Physiological and Pathological Doctrines of* THEOPHILUS BORDEU, M. D.

WE conceive that in offering to our readers a concise exposition of some of the principal doctrines, which, at different epochs of the art, have reigned in the schools of medicine, we shall occupy the space devoted, in this Journal, to Medical Literature, to real advantage. In this way we shall afford to those of our readers, who have not access to such works as contain the development of these doctrines, or who do not enjoy leisure, or possess the disposition, to consult ponderous tomes, and wade through a mass of rubbish in order to pick up a solitary gem, an opportunity of becoming acquainted, without much trouble, with what is of more utility than is generally admitted to be—the history of their profession.

Impelled by these considerations, we intend, in the present and subsequent numbers, to devote a few pages to an exposition of the physiological and pathological views of THEOPHILUS BORDEU, who ranks conspicuously among the medical philosophers of France. To such of our readers as are already familiar with French medical literature, the selection of this writer, at the present moment, will appear particularly judicious;—as in him we discover the original founder, as it were, of a doctrine, which, being ably developed and warmly defended by the present pathologists of France, has greatly contributed to establish their reputation, and is enlisting daily many proselytes in Europe and this country.

With the strictest propriety, BORDEU may be regarded as among the first who made a proper use of anatomical knowledge,—leading the way to BICHAT in the study of tissues,—investigating carefully the functions of parts in a state of health, and applying this physiological knowledge to the study of the morbid conditions of our organs. That we do not bestow unmerited praise, in these many respects, on BORDEU, we hope to be able to show in the course of this article; and were it necessary, we might strengthen our posi-

tion by adducing the testimony of Broussais himself, whose labours, no one can deny, have contributed more towards the advancement of what, notwithstanding the assertions and sneers of some physicians, may be called physiological pathology, than those of any of the successors of Bordeu.

This celebrated man was born in the South of France, in the year 1722, and after completing his academical studies at Pau and Lescar, repaired to Montpellier, in order to prosecute the acquisition of medical knowledge. The period at which Bordeu commenced his new studies in the far famed school of Montpellier, is not the least brilliant in the annals of our profession,—from the celebrity of the writers, who had already left the world, but were still occupying with their doctrines the attention of the profession, as well as from the renown of many still living. It was, indeed, a period when the inquisitive and ardent mind found many subjects well calculated to elicit his efforts in the cause of science and truth; as well as remarkable for the zeal and activity with which laborious researches were conducted. The truth of this will appear if we recall to the mind, that Van Helmont had already pointed out the relation existing between the various organs; and more particularly the great influence of the epigastric centre; not many years had elapsed since Stalh had shown the insufficiency of physical and chemical explanations of the functions of life, and of the phenomena of disease;—the great Boerhaave had in part introduced his mixed theories, and counted many supporters among the professors of Montpellier;—Willis had directed the attention of physiologists to the importance of the nervous system, and Haller was already filling Europe with his justly merited fame. Such was the period at which Bordeu arrived at Montpellier. Not a long time had elapsed before he assumed an elevated place among his fellow students;—gaining considerable reputation for originality of mind, and closeness of application. So early as 1742 he was honoured with the title of Bachelor of Medicine; on which occasion he defended a thesis on sensibility, in which may be discovered the rudiments of his subsequent views. The succeeding year he received the doctorate, and after spending one year at Pau, and two at Montpellier, proceeded to Paris, where he applied himself with the closest assiduity to clinical observations, both in private practice and in the public institutions of that metropolis.

In 1749 he was appointed superintendant of the mineral waters of Aquitaine. After fulfilling, several years, the duties of this appointment, and spending some time in his native country, where he publicly taught anatomy and midwifery; he returned to Paris in 1752, and soon after presented, to the medical world, his celebrated work on the glands. It was during his residence in Paris that he became intimately acquainted with LACAZE and VENEL, who afterwards distinguished himself as a professor at Montpellier, and in conjunction with them composed several works. Shortly after, he was named expectant physician of La Charité, and soon published his work on the pulse, which, for a long time, attracted the attention of physicians.

It is from the period of the publication of these works, that we may date the celebrity of BORDEU; for although his thesis on sensibility, his article *crise* contained in the Encyclopedia, and several essays sent to the Academies of Sciences and Surgery, had already placed him conspicuously among the physiologists and anatomists of the day, it was not until now, that he reaped the full reward to which his zeal, industry and learning, so justly entitled him.

Our limits not allowing us to examine the particulars of his life, and more especially to detail all the persecutions he subsequently encountered from his colleagues; or recapitulate all the conjectures that have been advanced, at various times, to account for their alleged causes; we can only remark, that were we inclined to engage in such an inquiry, we might, perhaps, trace their source, in great measure, to those opinions he so eloquently enforced, and which clashed so greatly with those long defended, and fondly cherished by a THIERRY, a BOUVARD, and other medical antiquarians of that period; and partly, also, to the caustic and satirical turn of his mind. Be this, however, as it may, he lived sufficiently long to surmount all the difficulties he thus encountered, and to enjoy a reputation, almost unexampled, for skill and learning.

After suffering, in a greater or less degree, for several years, from irregular gout, BORDEU retired to bed on the 23d of November 1776, and was next day found dead in his bed.

As will appear from the subjoined note,* the works of BORDEU,

* Dissertatio physiologica de sensu generice considerato. Montpellier, 1742. 4to. 2nd. Chylificationis historia. Montpellier 1742. 4to. 3d. Lettres sur les eaux minérales du Bearn, et de quelques unes des provinces voisines. Amsterdam, 1746—1748. 12mo. 4th. Observations sur l'usage

which are now to form the subject of our subsequent remarks, are very numerous. As we could not attain, satisfactorily, our present object by noticing them in the order of their publication, or even by offering a separate analytical review of each, we shall content ourselves with drawing from them indiscriminately, and arranging our extracts and observations in the best order possible.

We commence with BORDEU's sentiments on *Man*, viewed as a fit object for medicine. This subject will be found fully developed in many of his writings, though more particularly in his work on chronic diseases.

Man, he remarks, is a compound of various organs,—each of which, during life, has a movement, an action, a life peculiar to it, and acts and feels in a greater or less degree at certain periods, and enjoys a state of repose, at others.

du quinquina dans la gangrene. 5th. Memoire sur les articulations des os de la face, in the memoires de l'Academie des Sciences. 6th. Recherches anatomiques sur les differentes positions des glandes, et sur leur action. Paris 1752. 7th. Dissertation sur les écrouelles. In the memoirs of the Academy of Surgery. 8th. An omnes organicæ corporis partes digestioni opitulentur? quæstio medica. 1753. 9th. An venatio cœteris, exercitationibus salubrior? affirm. Paris 1753. 10. Utrum Aquitaniæ minerales aquæ morbis chronicis. quæstio medica, 1754. 11th. Recherches sur les crises. In the Encyclopedia 1753. 12th. Recherches sur le pouls par rapport aux crises. Paris 1756. 13th. Recherches sur le traitement de la colique metallique à l'hospital de la charité, pour servir a l'histoire de la colique vulgairement appelée colique de Poitou, 1762—1765. 14th. Recherches sur quelques points d'histoire de la medecine qui peuvent avoir rapport à l'arret de la grand' chambre du Parlement de Paris, concernant l'inoculation, et qui paraissent favorable à la tolerance de cette operation. Paris 1762. 2 vol. 15th. Recherches sur le tissue muqueux et l'organe cellulaire et sur quelques maladies de la poitrine. Paris 1767. 16th. Recherches sur les maladies chroniques, leur rapports avec les maladies agues, leurs periodes, leur nature, et sur la manière dont on les traite aux eaux minerales de Bareges, et les autres sources de l'Aquitaine, Paris, 1st vol. 1775.

With the exception of the three dissertations we have numbered 8, 9, 10, and the letters on the medical springs of Bearn, BORDEU's works were republished in 1818, by professor RICHERAND of Paris, in two volumes, 8vo.

Besides these several works, BORDEU is thought to have written the following, which were published under the name of LA CAZE. It is perfectly well known, at least, that he furnished the principal part of the materials.

Specimen novi medicinæ conspectus. Paris 1749—1751. Idée de l'homme physique et moral, pour servir d' introduction à un traité de médecine. Paris 1755. Institutiones medicæ ex novo medicinæ conspectus. Paris 1755. Extrait raisonné du traité de l'homme physique et moral et des institutions medicales, Paris 1758.

In the present article we shall draw indiscriminately from all these works.

The general life is only the result or the compound of all the separate organic lives,—depending on the concourse and on the determinate and moderate order of the movements, agreeably to which the particular functions or lives are executed. After illustrating this position by the comparison of a large number of bees grouped together in the shape of a ball,—each of which, however, has its life separate, he remarks that all the organs of the body are linked together, each possessing, however, its district and action; and that the relation of these actions—the harmony resulting from them, constitutes *health*. If this harmony becomes deranged, either owing to the debility of one organ, or to the action of one organ becoming greater than that of its antagonist;—if the actions are reversed, and do not follow their natural order; these derangements constitute *disease*, which, in proportion to the degree of their intensity, is more or less violent.

Each age and each sex has a peculiar order assigned to its functions. Each individual, indeed possesses a life peculiar to himself. Perfect health is a mere ideal and metaphysical being, seldom or never to be found. The health or peculiar life of each individual, becomes more or less removed from perfect health, in proportion to the greater or less activity, or debility of the function of some organ. From this circumstance the various temperaments, or rather the various habitual determinations in the functions of the animal, originate. Thus, sometimes the liver, at other times the stomach, brain or organs of the corporeal faculties, predominate over the other organs; the various combinations resulting from these changes, constituting the differences in the temperaments of various individuals.

Each individual then has a character distinct from that of every other; but there are, in him, some organs whose functions are common to all, and must be regarded as the agents and supporters of life. These functions are those of the brain and nerves,—of the heart,—of the respiratory and digestive organs. The most essential are the brain, heart and stomach, which may be regarded as the triumvirate of the human machine;—the true supporters of life. These organs constitute so many centres, from, and towards which, all actions and efforts necessary to the various functions of the body, originate or are directed. These functions are linked to each other in an admirable manner; and all depend on the influence

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or action of the nervous, animal, or sensitive fibre, variously distributed, supported or excited, in the different parts.

But if these fibres originate in the brain, and are therefore continually called into action through the agency of the functions of the soul, or of external causes acting on the organs of sense, they likewise find causes of excitement in the stomach and appendages, which are continually shook by the movements of respiration; by the effects of digestion, and the passions; and by all corporeal efforts. These fibres are moreover excited by causes originating in the uterus in women, and, in a word, in all the viscera, the movements and sensations of which are communicated to them by these fibres. Finally the stomach and the neighbouring organs, such as the diaphragm and intestines, appear to be a centre or reservoir of actions, which in all our corporeal functions, or even in some under the dependance of the soul, extend from this centre to all parts of the body, or else assemble or concentrate into it, producing those striking impressions, of which the physician daily finds examples in practice.

Our nervous and sensible women, he says, who are attentive to all that passes within them, make every day, on this subject, the most acute remarks. There are few of them who could not prove, that one of the seats of the passions, and even of our corporeal efforts, is towards the pit of the stomach and towards the heart. They would express themselves more clearly than the ancient philosopher, who, in order to prove the above position, asserted that in pronouncing the word *me*, *I*, *or ego*, it is necessary to incline the head downwards, in order to indicate, by this movement, the seat of the soul. From this it follows, therefore, that the nervous fibres have two principal sources, the brain, and the middle portions of the body, comprising the heart, stomach, diaphragm and intestines. These two sources appear to be in a perpetual state of antagonism, by which the functions are kept in constant activity. This takes place the more readily, as these functions are merely extensions of the action, originating in these two centres, and proceeding through the nerves to the extremities. But as the essence of the life of the animal body, consists in a sort of motion and sensation, or in a disposition towards these two properties, it is necessary that each vital function should be intermixed with motion and sensation;—and ex-

perience teaches us, that such is indeed the case. There are functions in which sensibility predominates; and over which the soul united to the living body, exercises by its action on this latter, the greatest influence. Others, on the contrary, seem to depend merely on the purely *vital sensibility*, without any evident participation of the soul. "The same observation may be made by directing our attention to these functions characterized by motion. In some it is very sensible, and under the control of the soul. In others, also sensible, but apparently independent of the soul; others again exist in which motion is scarcely perceptible. These combinations of *evident* motions and sensations, and of the *obscure* motions and sensations, constitute the chain of the functions and life, and serve to keep it up.

It must appear evident, to such of our readers as are already familiar with the writing of BICHAT, BROUSSAIS, and other late physicians, that many of the opinions so fully, and we believe so ably, developed by them, may be traced, without difficulty, to the views of which we have just offered a brief outline. BORDEU's definition of health, though more particular of disease, which is referred to a derangement of one or more organs, is precisely the same with that adopted by modern pathologists. He seems to have troubled himself very little, in his explanation of morbid phenomena, with those essences, starting up suddenly in the body, but existing there independent of the organs, and by which the science of pathology, in the 17th, and commencement of the 18th century, was involved in deep obscurity.

The doctrine of temperaments, which at the same period, was still tinctured with a remnant of the Galenical notions about differences of humours, appears to have been greatly improved in his hands; and when we compare the results of the researches on the subject, by CABANIS, HALLER, and other late writers, we readily discover, that they consist merely in the development of general observations, which BORDEU had loosely thrown out. The great influence which, in imitation of VAN HELMONT, he attributes to the stomach and appendages, undoubtedly constitutes the foundation of the doctrine which BROUSSAIS has lately so ably promulgated. It is true, that many of the ideas of BORDEU are crude and expressed sometimes in a vague and almost unintelligible manner; but when we recall to the mind when and where he wrote, we are only

surprised to find him approaching so near the truth. His expressions of vital and obscure sensibility, possibly gave to Barthez the idea of that kind of sensibility, afterwards so fully illustrated by Bichat, under the name of organic; and it is also probable that his *obscure motion* independent of the soul, may be compared to the organic contractility of that author.

Bordeu was among the first to propose a division of the body into two lateral halves; and this served to Bichat as the ground work of his division. We cannot stop here to notice his opinion on this subject, as we must suppose that most of our readers are already acquainted with it from reading the Anatomie Générale.

Many of the ancients admitted the existence of a multiplicity of fibres in the human body,—regarding this latter as a compound of many heterogeneous parts, possessing a fibrous structure, each disposed in a way peculiar to it, and entering into the formation of the organs. Among the moderns, Haller thought that the body was composed of one *common* fibre; but under this name of fibre he evidently comprehended several kinds of elements, which, being differently modified and combined, constitute the various organs of our body. Baglivi admitted two sorts of fibres, the membranous and muscular; but neither Baglivi nor Haller thought that the *nervous* fibre was necessary to the arrangement of the organs. Entertaining a different opinion, Bordeu maintained that the animal machine is composed of one fibre—the nervous, originating in the spinal marrow. This latter is placed, as it were, in the midst of the body, from whence it sends to all parts of the system, branches which preside over the formation of the organs, and furnish them with a particular degree of sensibility. It is to the various arrangements of these fibres, he says, that we must refer the diversity of the organs. He regarded these fibres as having at their extremities, the germ of each part, which develops itself gradually in the cellular substance. For example, the nervous fibres of a muscle, form at their extremities, a kind of mould, which, extending in a particular manner, causes also the cellular substances to assume a variety of shapes; in the same way that we see calcareous strata forming madrepores, extending agreeably to the direction of the roots of a plant. Such is the idea, he remarks, we must form of the contexture of each muscle, and of all other parts, which vary according to the pri-

mitive disposition of their germ, and to the secondary arrangement of the cellular substance.

From this it results, in his opinion, that the nervous fibres constitute the frame work of the animal, and that the other parts, such as the muscles, membranes, &c. are only accessary or secondary, serving merely as a support to the nerves, and as ornaments to the body. They consist, as he thought, of cellular, or, as he termed it, mucous substance only, variously modified by the nervous system. Consequently, if we could imagine the animal to be deprived of these secondary parts, but possessed of its nerves, it would still exist as an animal, since it would be endowed with sensation and motion,—properties inherent to the nervous fibre, and constituting the essence of animal life.

Bordeu was one of the warmest defenders of the epigastric forces, and in this respect may, perhaps, be regarded as a disciple of Van Helmont; but his views, on the subject, are in many respects, different from those taught by his predecessor. He likewise particularly pointed out the defects of the doctrines of Van Helmont, and the little good that could result from the chimerical term of Archeus in the physical explanations of the functions of the animal economy in health or disease. He remarks that it is substituting an occult quality for a physical cause. Agreeably to him, all movements in the animal economy are reciprocal; or, in other words, there is no action without reaction—no effort without opposition of the antagonising powers. Life, indeed, depends so evidently on this conflict or counterbalancing, that it would soon end if those actions destined to keep it up, did not support each other, agreeably to the order of antagonism, or of relation imparted to them.

In this communication of action, the system of nerves, and that of the membranes principally concur. These organs, considered together, constitute the general system of the strength, (*forces*,) which is divided into as many parts as there are functions in the system to perform. But these powers have a centre of determination, towards which they converge in a more particular manner, and from which they receive often a much greater degree of tension and action: this centre is the epigastric region.

The power of action and reaction with which this part is endowed, depends on that possessed by the diaphragm, stomach,

and intestines. These viscera not only act on all parts of the animal, and communicate with them, but oppose to each other an effort or action from the equilibrium of which health arises. This may be proved by a reference to anatomy, and to the phenomena observed during life. Thus the sympathetic nerve takes its origin in the epigastric centre, is distributed to the viscera of the abdomen, and communicates with every other nerve. The cellular tissue, or as Bordeu sometimes called it, the membranous system, forms a continuous organ, which, arising from all parts of the body, unites at the epigastrium, and undoubtedly communicates to it the action of all parts, either directly, or through the agency of the nerves.

If we notice what takes place in children, when, after birth, they remain several minutes without breathing, we discover, that as soon as the air penetrates the lungs, a shock is occasioned in the system, sometimes sufficient to raise the body suddenly, and which can be referred only to the sudden contraction of the diaphragm. This muscle, during the time the child remained in the uterus, performed its tonic action only; but in consequence of the irritation occasioned by the air, on the surface of the body, and principally in the interior of the nostrils, it contracts powerfully, and occasions a kind of convulsive movement in the whole machine. From all this he concludes, that this organ is one of the principal agents in the production of the actions of the body. During any bodily exertion, he proceeds, we experience in the diaphragmatic region, and along the recti-muscles, a degree of contraction, without which the body is incapable of any effort, by whatever cause excited; we experience also a degree of lassitude towards the same region, whenever the body is no longer able to bear the continuation of any extraordinary effort;—proving that the organs situated in this region, have been principally affected, and consequently that their action, during this effort, has been greater than that of other parts.

The state of uneasiness and tension experienced in the epigastric region after some passions of the mind, and long mental application, points out the communication of this region with the cerebral organs. Again, when we swallow aliments, the debility arising from the want of them disappears, and we experience,

towards the region of the stomach, an agreeable kind of sensation, which soon extends to all parts of the body. Individuals unaccustomed to the exercise of the horse, or the carriage, often suffer greatly from vomiting; which depends on the derangement occasioned in the order of communication established between the epigastrium and the external parts of the system. We also witness eruptions on the skin from eating certain substances. The facts mentioned prove the communication of the epigastric centre with the various parts of the body. Bordeu now states, in order to show the necessity of this reciprocal or antagonising action of certain parts during life, that the mass of intestines, which is almost deprived of action whilst the child remains in the uterus, ascends high, during this state, under the ribs, because the diaphragm has not yet contracted. But as soon as respiration commences, these parts acquire a degree of action they did not before possess, and, from that, a new life;—they are, at the same time, pressed downward, and reduced to a smaller bulk than before;—they are moved and agitated by the irritation they have suffered; and this irritation is afterwards kept up by the successive movements of the diaphragm and abdominal muscles, as well as by the meconium, which, in consequence of this new sensibility, has become a source of irritation to them. From this it follows, agreeably to his views, that every viscus in particular, as well as the intestinal mass, make efforts, more or less energetic, to oppose the action of the diaphragm.

Bordeu further strengthens his opinion by observing, that, having opened the abdomen of a dog, he found that the diaphragm, when no longer opposed by the intestines, and when irritated, by large incisions, contracted much more powerfully and permanently than in its natural state; and he also found, that as soon as the diaphragm was excited to action, the mesentery contracted as powerfully and permanently, and, rising in the abdomen, drew the intestines with it;—both contractions ceased together.

At the present moment, when the science of physiology is carried to great perfection; at least comparatively to what it was at the time of Bordeu, the deductions which he drew from the facts and reasoning we have here offered, will, of course, appear to our readers, not fully justified. The great share of influence he attributed to the diaphragm will especially be regarded as unsup-

ported by subsequent observations; but, whilst admitting this, it cannot be denied, that some of the more modern doctrines respecting the active agency of the stomach and alimentary canal, in health and disease, might perhaps be traced to some of the views concerning the communications of the stomach with the brain, muscles, and skin, mentioned above—communications which were very differently and absurdly explained by the older physiologists and pathologists.

Bordeu could not admit with Haller, that *irritability* should be regarded as a general property, to the exclusion of *sensibility*, which, by the professors of Montpellier, had long been viewed as of paramount importance in all physiological explanations. Adopting, and in some measure extending, the views of these latter, Bordeu regarded sensibility as more easily comprehended, and sufficient of itself to account for all the functions of the body in a state of health or disease.

It is but just, however, to claim for Bordeu a little more credit, in this question, than the friends of Haller are willing to concede to him; for although Glisson and Payer may be regarded as having given to Haller the first hints of the existence and laws of irritability, it is this latter who has reaped the greatest share of honour for the discovery and development of this property. Haller commenced his experiments on irritability and sensibility about the year 1742, and his papers on the subject appeared in 1759. Now it appears that, in 1742 and 1746, Bordeu, then only a student, investigated, in conjunction with Professor Lamure of Montpellier, the opinions of Hamberger on respiration, and those of Willis on the density of the cerebrum and cerebellum. This led them to analyze the question of sensibility, considered in general, as well as the share of this property, possessed by each part.

Regarding experiments on animals as too often fallacious, they applied themselves, with great diligence, to an investigation of the phenomena of life. Of all these researches there remains only what Bordeu has left us in his writings, and especially in his dissertation *de sensu in genere*, in which we find a division of the functions founded on mobility and sensibility, which he regarded as the principles of life, or at least, as essential to the animal being. This dissertation was published in 1742. We have already seen

that BORDEU thought, (and LAMURE, of course, entertained the same opinion,) that each part enjoys the power of motion and sensation, but not in equal proportions; some enjoying a large share of mobility, and little sensibility; and others in which sensibility predominates over mobility. It results from this, therefore, that so early as 1742, when HALLER began his experiments, the physiologists of Montpellier, and BORDEU in particular, had already some knowledge of irritability and of general and particular sensibility; but that they explained the former differently from HALLER, referring, as they did, the contractile property of muscles, both tonic or insensible, and muscular or sensible, to the influence of the nerves, whereas HALLER, on the contrary, denying this influence, made of irritability a distinct and independent property.

We cannot enter, on the present occasion, into an examination of all the arguments advanced against the sentiment of HALLER, during the controversy which existed so long on the subject of irritability. All we can do, is to direct attention to the manner in which BORDEU and LAMURE answered the fact mentioned by HALLER, that irritability continued after the division of the nerve. They endeavoured to show that the action or life communicated to this part by the nerve, might be continued for some time after the separation of the latter; only requiring for its manifestation, the same means as are employed when the nerve is uninjured. They compared the part to a piece of iron charged with magnetic property, and retaining it for some time.

HALLER also might have been refuted with his own words, as he admits in the 4th volume of his elements of physiology, (p. 347) the great influence of the spinal marrow over the action of the heart, as manifested by the occurrence of death when the medulla is cut at the upper part of the neck, from which originate all the nerves of the heart. "*Hæc omnia ostendunt evidenter, præcipuos cordis nervos ab ea sede medullæ spinalis nasci; nàm cæterùm vitia hujus partis corporis irritatæ mentis officia non turbant.*" He further adds, (p. 356) that fœtuses that have lived without brain, possessed enough of the spinal marrow to enable the heart to exercise its action. "*Plerisque medullæ spinalis etiam fuit tantùm, quantùm sufficere poterat ut cordis motus superesset.*" After this admission, it is difficult to comprehend how HALLER could maintain

that contractility and the action of the heart in particular, was exercised independently of nervous influence.*

Be this, however, as it may, Bordeu defined sensation, a function which, when exercised in man, causes him to perceive objects through the medium of certain organs, which are differently affected or modified by the presence of these objects.

Sensation or sensibility is very extensively distributed—it presides over, and directs every function,—it presides over diseases, and the action of remedies;—it varies and is differently modified in every part of the body. It principally reigns in the stomach, whose functions depend on a degree of sensibility too often overlooked by physicians, who have regarded this viscus as an almost passive reservoir; whereas it is endowed with a considerable portion of sensibility,—the various degrees of which (or the various tastes) are manifested at each moment, and keep up or overthrow the regular accord and relation of the whole economy. Consequently the stomach and its appertenances, which we have seen Bordeu regarded as a principle centre of the motific powers of the body, are also considered by him as a centre of all the various degrees of sensibility.

We shall not follow Bordeu into an investigation of the structure and properties of the nerves; nor of the mechanism of their action, or the agency of the soul in the production of sensation. It will suffice to say, that he viewed these chords as the organs or principal instruments of sensibility, and compared the nervous system to a polypus, the pedunculi, or branches of which are distributed or expanded in all parts of our body: the brain being the bulb or receptacle of the roots, and the medullæ oblongata and spinalis, the body or *tige*.

Each nervous prolongation performs a particular function, or predominates in some part, and possesses, as the ancients maintained, an inherent, proper and sensific faculty; the true agent and vehicle of sensations. The same object impresses a sensitive action only on homogeneous fibres; and as there are but few of this nature, we may readily imagine, that almost each nervous bundle possesses a peculiar disposition and aptitude to the exercise of its proper sensation. It will be incapable of any other, except per-

* Ollivier de la moéle epinière et de ses maladies.—p. 62.

haps of the sensation of pain or pleasure taken in the general. After citing many examples and offering many remarks, he concludes that each part of our body is susceptible of experiencing a general sensation of pain or pleasure, which each experiences and expresses in a peculiar manner.

This is more especially noticed in the viscera, which are endowed with a kind of instinct or tact excited and exercised by a moderate irritation. From this it follows, that the idea expressed by the ancients, that each viscus possesses an inherent faculty, is not entirely to be rejected. It tastes and chooses as it were, from among the aliments or substances offered to it, such as best suit its particular nature; retaining those that are useful to it, and rejecting such as might prove injurious. All sensations, he regarded as placed under the control of the soul.

Bordeu, after mature reflection on the subject, expressed the opinion, that the soul or principle of life exercised its action more particularly at the origin of the nerves; and that this action is more evident at the place where the nervous fibres decussate each other, namely, in the medullæ oblongata and spinalis. This he inferred from the fact, that whenever this part is cut or punctured, the animal dies. A plausible explanation of the cause of death from wounds of the medulla, could only be expected after multiplied and careful experiments on animals—a task which was reserved to Le Gallois and other modern physiologists. As regards his opinion respecting the seat of the principle of life, in the medulla oblongata, Broussais has, in latter times, reproduced it in somewhat different language.* Bordeu regarded the epigastric region as another point or centre, in which sensibility is particularly manifested; as proved by the acute impression experienced in this part during pain, or some violent passion of the mind.

The views which Bordeu entertained on the subject of secretions and excretions, and which will be found fully developed in in his elaborate work on glands, next claim some attention. We

* Sil n'y a qu'un centre unique de perception et de volition, il doit etre dans le point où se fait la perception du besoin de respirer, et d'où part la volition qui détermine l'action des muscles inspirateurs. Or ce point est l'insertion des nerfs de la huitieme paire: donc ce point est le centre unique de toutes les perceptions et de toutes les volition. *Physiologie appliquée à la Pathologie*, t. 1. p. 103.

cannot stop here to lay before our readers his sentiments respecting the minute structure of glands, or even an outline of the manner in which he examined the opinions of Malpighi and Ruysch on this subject. It will be sufficient to state that he inclined to the opinion of the former, whilst subsequent anatomists have, for the most part, adopted the views of Ruysch. In his inquiry into the action of glands, Bordeu commences with *excretions*. At the time he wrote, it appears to have been generally admitted among physiologists, that all organs, and particularly glands, require compression in order to be able to accomplish the function of excretion. Such, at least, was the sentiment advanced by Bergerus, Bohnius, and adopted and defended by Boerhaave and his disciples, as well as by the physiologists of Montpellier, Lazerme and Fizes. Bordeu, on the contrary, was early of opinion that compression, so far from favouring this effect, would, when violent, tend to prevent it; and he soon came to the conclusion, that these organs expel the humours they contain by means of an action peculiar to them, as is found to be the case in the expulsion of the milk and semen.

He examines these two excretions with attention and minuteness, and applies his reasoning, by analogy, to the others. He remarks, that before the excretion of the semen takes place, we notice the *erection* or a preparatory disposition in the organs of generation. This is found to be the case in the internal as well as external parts of this system; and points out the existence of a *spasm* of all these parts. Now, this spasm he elsewhere regards as the effect of an irritation seated in the nerves of the gland,—thus establishing the fact, that a state of irritation is requisite to the performance of the excretory process. This is further proved to be his view, by an examination of what follows. Thus in regard to the excretion of milk, he says, the child which sucks not only extends the nipple by pulling it, but irritates and stimulates it in such a way, that it contracts and takes on a state of erection, which in some women is so easily excited as to be occasioned by the mere touch. He remarks, that it is true there are instances in which the milk is made to flow by a mere pressure with the hand. In such cases, however, it is expelled in a jet, which soon subsides,—showing that it proceeds only from the milk vessels between the fingers and the extremity of the nipple. If the *spasm* in the vessels does not occur, the excretion

ceases. From all these facts, he is led to conclude, that the process of excretion depends on an action peculiar to the organs destined to its accomplishment; and he further remarks, that in order that this process should be completely effected in these organs, they must, 1st, be placed in a preparatory state of spasm, which he designates under the general name of *erection*. 2nd, They must undergo a degree of motion (secouses) or suffer an irritation, without which, the simple spasm would not of itself be adequate to the performance of the excretion. 3d, A proper disposition or tension of their excretory ducts. 4th, And finally, a particular disposition of their blood-vessels, by which he means such an arrangement of these latter as will secure to the part a larger flow of blood. These conditions are distributed in various degrees to the different excretory organs. Thus erections are more evident in the organs of generation; whilst in others, there exists a greater tension and elongation of the ducts; but in all, the peculiar arrangement of vessels alluded to, is found. As he applies the same reasoning to the functions of excretion as performed by the parotid, liver and other glands, we proceed to examine his views in relation to secretion.

This function he also regards as accomplished by means of a peculiar action with which the gland is endowed, and which is entirely under the control of the nerves. The following reasons are given: 1st, If we cut a nerve going to a gland the secretory process is suspended. 2nd, The glands are supplied with numerous nerves, without, however, enjoying to any remarkable degree the motific and sensific properties. If not to the effect alluded to, to what are these nerves destined? 3d, Secretions are supposed to be suspended during sleep. Now, sleep is the effect of the inaction of the nervous system. This will consequently serve to account for the suspension of secretion. This function is also suspended or diminished by opium, the effect of which is known to moderate the action of, or even to stupify entirely, the nerves. 4th, By irritating, or augmenting the action of a nerve going to a gland, the function of that gland is increased, which would not be the case, were not this function under the control of the nerves. 5th, The influence of the imagination over secretions is well known. How does it produce this effect but through the agency of the nerves? Consequently the

nerves must be the influential organs in the performance of this function. 6th, The duration of secretions and their suspension after a regular period, is another proof of the action in question. The same phenomenon is noticed in every part, and can depend only on the fatigue of the nerves and their want of repose.

The nerves contribute moreover to the function of secretion by attracting to the glands a greater quantity of blood; for the increased energy of nervous action directs a greater flow of blood to the irritated part. This, he adds, cannot depend simply on the action of the heart; or be an effect of the ordinary laws of the circulation, as these operate equally at all times, during an increased or even a diminished secretion. He further remarks, that by analogy we might suppose the nerves destined to exercise two functions in the glands, in the same way that we find them to do in the muscles, in which, 1st, *they serve to keep up the life of the parts, and 2nd, to preside over their muscular action.* The metastasis of secretions also, as for example, the change in the mammæ when the action in the uterus ceases, he thinks, can be explained by supposing it to be effected only through the agency of the nerves. The manner in which secretion is performed, is referred by him to the peculiar sensibility of the nerves situated at the minute extremities of the ducts, by which these are made capable as it were, of tasting the qualities of the substances presented to them by the blood-vessels,—admitting those that suit, and rejecting such as might injure them: In the same manner, we suppose that the orifice of the lacteals admit chyle but reject most other substances. From all this it follows, that in Bordeu's opinion the function of secretion must be ranked among the *vital* functions, which are under the domain of sensific and motific properties. It is neither mechanical nor chemical.

In the above *exposé* of Bordeu's views, we are struck with the justness of many of the positions he lays down:—such as the peculiar action inherent in each part;—the influence of the nerves in secretion;—the necessity of irritation to the exercise of this function; and the effects of nervous excitement in producing an afflux of blood; all of which positions are, at the present day, pretty generally admitted by the best physiologists. It is true that Bordeu did not make the necessary difference between the influence of the cerebral and that of the ganglionic nerves, in the process

of secretion; for, we find in paralysis of a limb, for example, the secretion of synovia continuing;—a circumstance referrible only to the continuance of energy in the ganglionic nerves following the vessels. But the famous BICHAT committed the same error, and by this was led to deny the correctness of BORDEU's conclusions respecting the influence of the nerves. At any rate, BORDEU did all that could be done on the subject, at the time he wrote.

In the work before us, (on glands) may be discovered, we believe, the ground-work on which BICHAT subsequently founded his division of functions. Thus in several places, and especially at page 415, he divides them into those that have a reference to the maintainance of the life of a part,—which functions are extensively and equally distributed; and into those which refer to the exercise of the particular *act* allotted to the same part. Having already noticed his idea concerning the double function of the nerves in the glands and muscles, we think it only necessary to allude briefly to what he says of the lungs, which, he remarks, *live* in the fœtal state, continue to live after birth, and moreover perform then their particular function—respiration.

BORDEU is, we believe, the first author who publicly taught that the catamenial fluid resulted from a secerning action in the uterus. This opinion was subsequently hinted at by Mr. HUNTER, and maintained in plain terms in 1787 and 1788 by Drs. CRAVEN and MACLAURIN, in their inaugural dissertations defended in the school of Edinburgh; and at a still later period, by our countrymen, Dr. DAVIDGE, of Baltimore, and Drs. CHAPMAN and DEWEES, of our own city. Much credit has been claimed, even by some late writers, for the honour of having discovered this fact, if such it must be admitted to be; and in all this contention about priority, very little justice has been done to BORDEU; for we do not find his name often mentioned in relation to the subject, and when it has been quoted, the writer appears to have done so without consulting his work. Sure it is, however, that he deserves the credit of originality on this head, since the first edition of his treatise on the glands, in which this theory is suggested, appeared in 1751. As we cannot detail on this occasion, all BORDEU's sentiments on the subject, we shall content ourselves with observing, that he considered the uterus as endowed with an action peculiar to it—an

action distinct from that presiding over the life of the organ;—superadded to it, and allied in many respects to that which presides over the excretions and secretions of ordinary glands. The comparison, he remarks, of the uterus with the glands, is particularly striking, when we examine what occurs at the time of the catamenia. He refutes the idea of general plethora, and remarks that if a partial plethora occurs, it is only the effect of a previous disposition, to a catamenial discharge, in the uterus. Thus, he says, the excretions of the uterus is effected by the same mechanism as that of all other glands we call *active;* the organ awakens *et erigitur*, by which means it attracts a larger quantity of blood, and excretes it in the manner we have described.

After considerable reflections on the subject, and after detailing many cases, he comes to the conclusion, 1st, That the ailments of women, at the approach of the menses, depend on the action and sensibility of the uterus. 2nd, That the discharge of the menstrual fluid from unusual parts, supposes that the uterus has not lost all its action. It is not disposed to allow the menses to flow; but is not, for that, in a state of insensibility. 3d, If it were so completely, all irritation would cease, and the woman would find herself in the same situation as girls who have not yet menstruated.

In reference to digestion, Bordeu agreeing in opinion with all physicians, thought that it was performed by the action of the stomach and gastric juices; but he further believed, that all parts of the body concurred to its accomplishment. On this subject his sentiments were somewhat vague, and seem to have arisen from his witnessing the effects occasioned in all parts of the body, by the influence of the stomach during digestion. In order to establish his position, however, he analyses all the phenomena attending hunger and digestion,—noting with particular care, the effects experienced by the stomach, and other parts of the body, during these states, and also detailing the different periods of digestion, which, as we shall see by and by, he compares, not unaptly, to the different stages of a febrile paroxysm. From all this he infers, that as various parts are affected during the process, so those different parts must concur to its performance. He remarks that there is in the body two sorts of actions which cross each other—one from within outwards; the other from the exterior to the interior. It is on this principle he observes that we

are to account for the chill occasioned by a fulness of the stomach, and by an intermittent fever, as well as the heat and redness which succeed. Whatever may be thought of this explanation, he expressly states, that when the stomach is occupied with the process of digestion, it becomes a point towards which all the powers of the system are concentrated, and from whence they start to be reflected on the surface of the body. He notices the action of the stomach on the organs of sense, on the lungs, muscles, &c. during digestion, and says that the agents of this communication are the nerves and cellular membrane. On this subject he observes, that the gastric nerves are united with all the other nerves of the body; it is not astonishing, therefore, *that when irritated* by the presence of aliments, they should produce an impression on all parts of the animal machine.

The doctrine of sympathy, such as is taught at the present day, if not founded by Bordeu, was at least very much benefitted by his researches; for every thing he has written on what he denominates the *department* of the organs, relates to the influence which the latter exercise on one or more parts of the body; this we may infer from his definition of the term, by which, as he tells us, he means all that enters into a kind of action, when these parts act or undergo various particular modifications. The action of the organs, on all other parts belonging to their department, is communicated; 1st, through the medium of the circulation; 2nd, by the system of nerves; 3d, by means of the cellular tissue. The department of each organ is manifested in health and in disease. Although it is not possible to determine the exact limit of each department, we know that some parts exercise an action over the whole system, whilst, on the contrary, others have but a very restricted department, and seem to produce an action on but few parts. Among the former, we may enumerate the stomach, diaphragm, intestines, and parts of generation in man, and the uterus in women; but although the sphere of action of these organs be very extensive, they each seem to act in preference on some particular part. Thus the uterus exercises a specific influence on the mammæ,—the parts of generation on the vocal organs; whilst the intestines extend their action principally to the extremities.

Other viscera have a department, though to a much more limit-

ed extent,—as for example, the liver, which influences such parts only as are situated on the same side of the body with it. The spleen exercises an influence on the organs of the left side—the kidneys on the thigh and upper extremity of the same side, and sometimes on the diaphragm. The duodenum, he remarks, excites pain in the back during the chill of fever; and it is not to be denied, that irritations of this organ are communicated to the liver and pancreas, which, consequently, must be ranked among the organs belonging to its department.

The glands have also their department; but, as it would occupy too much space to enter into greater details, we pass to another subject.

Most physiologists, Bordeu remarks, have considered the circulation in a general way, without appearing to bear in mind that it can be very different in the large vessels from what it is in the smaller ones. Is it not probable, he asks, that each part can have its particular circulation, which may be accelerated and retarded without affecting the general circulation? Is it not also probable that these particular circulations are more or less modified and accelerated, according to the different orders of vessels in which it occurs, and to the action and uses of each part? There is, therefore, a general circulation, and many particular circulations, which may be compared to so many little circles, terminating in a larger one. Bordeu makes use of the word circle in order to denote that a part, although receiving its blood through the medium of the *general* circulation, or that which is performed in the larger vessels, has nevertheless its own circulation, according as it may or may not be in action. The other parts which receive the influence of this action, belong to the department of its *circle*. Agreeably to Bordeu, therefore, each part of the body may be regarded as being, in some measure, independent of the others; and, although it acts by means of the general circulation, it is as distinct from other parts, as the system of red vessels is distinct from that of the white, or as the circulations of the lungs and liver are from that of the large vessels.

Bordeu was of opinion, that the discovery of the circulation of the blood had occasioned too much neglect of the relation and connexion existing among the vessels of different organs; as, for example, those of the interior of the nostrils with those of the ab-

dominal viscera; and he remarks that STAHL and his disciples have shown, by many facts, that the circulation, especially of the smaller vessels, is not fully explained by the reasoning of HARVEY and his successors. After endeavouring to prove this, he remarks, that

"If it be true that between the extremities of the arteries and veins, there exist vessels of communication, in which the humours are moved, agreeably to the particular determinations of the nervous oscillations, and without following the laws of the circulations, &c. If the anastomoses can only serve to afford to the humours a means of passing and repassing, of flowing and reflowing; or to subtract a large portion of vessels from the same laws of the circulation. Finally, if the cellular substance is so arranged that the liquors it contains can move in all directions, the Harveian laws of the circulation do not hold good in this tissue, which by itself constitutes, at least, the half of the volume of the body."

It is plain, from this, that BORDEU must have been one of the principal sources from whence the great BICHAT derived his idea of the independent circulation of the capillary system,—an idea, however, he greatly developed, and illustrated in a more intelligible and satisfactory manner. That the capillary system has its separate circulation, and that the blood, when once pushed into those vessels, no longer obeys in toto the laws of the general circulation, as is particularly seen in irritation, may be to some extent true; but we are disposed to admit with BROUSSAIS, SARLANDIERE and other physiologists, that, whilst a portion of the blood circulates in all directions, and proceeds to the exhalents, (if such vessels exist,) as well as to the various secreting apparatuses, another portion passes directly into the veins, and therefore, may be fairly said to obey the laws of the general circulation.

Inflammation, says our author, is the cause, or effect of many diseases; but we must not, on that account, endeavour to discover it, as many of our modern physicians do, in all complaints. These expressions, which are nearly similar to those made use of by many of our cotemporaries, we shall presently endeavour to account for; and perhaps it will be found that the explanation we shall offer, will serve, in a great measure, to oppose to the modern skeptics about the inflammatory nature of many maladies. With BORDEU, inflammation consists in a collection of blood in a part, in which there is, at the same time, an augmentation of heat and power. All these phenomena, he observes, are produced through the agency of the nerves and vessels, so that the fluids which

these contain, may flow in every direction, according to the determination and power of the oscillations. These vessels may be viewed as so many rays terminating in a particular centre. This latter is very often a mere derangement, in some laminæ of the cellular membrane, producing, in that part, the same effects as a thorn,—increasing prodigiously its action, or, to use the expression of Van Helmont, rendering it furious.

A part which inflames, becomes as it were a separate organ; having its action, circulation and functions independent, in some respects, of the general circulation. It possesses a kind of action superadded to that constituting its life,—it becomes a separate circle, and finally a centre towards which the energies of the system are concentrated, and the humours flow in great abundance. He, therefore, regards the action of the nerves of a part, as the cause of inflammation, and the engorgement of the vessels as the effect. Thus, he continues, if each trunk of the vessels carrying red blood, be surrounded with nerves, as is probably the case, it follows, that when these nerves are irritated, they will propel a larger quantity of blood towards the ramifications of the vessels, as take place in the glands, towards which, during their function of secretion, the humours are carried in larger quantity, and with greater force.

He remarks, that many vessels are both sanguineous and lymphatic,—carrying white fluids in a state of health; but under certain circumstances enlarging sufficiently to carry red blood. This particularly occurs in inflammation, when these vessels, whose nerves are irritated, become dilated and straightened. They now take on a state of increased action, or violent *erection*, which causes more blood to flow through them. In other places, he refers the tumour of inflammation to the erection (érétisme) or tension of the vessels and nerves. Whether right or wrong, this idea approaches pretty nearly to that of active dilatation, which M. Prus has lately endeavoured to revive.

Bordeu particularly dwells on the fact that the mere repletion or plethora of veins, arteries, and intermediate vessels, does not constitute inflammation, and says, that if these parts are washed with warm water, and show concretions, it will indicate inflammation,—pain, acute and spasmodic tension of the part; rapidity in the march of the disease, and general fever having preceded.

The contrary phenomena, indicate the effect of a defective action in the part. It follows from all this, he concludes, that the cellular tissue is the true seat of inflammation. It expands and enlarges to form those tumours noticed in that disease, but which are never seen in parts simply membranous, and little furnished with this cellular substance.

This latter remark will account for the expression we noticed above; for it follows from this, that BORDEU, like most of his cotemporaries, and too many of the physicians of the present day, regarded *phlegmonous* irritation, or that attacking the cellular substance, as the true type of inflammation; and completely overlooked this morbid state when seated in the membranes and tissues of the body. On this head. we believe that much good has been done by BICHAT, and his followers, in France; for nothing could contribute so much to advance the true pathology, and therefore treatment of disease, as a correct knowledge of inflammation, as modified in all the tissues of the system. We cannot help, moreover, calling the attention of our readers, to the views of BORDEU, respecting the primary modification of the sensibility of a part affected with inflammation, and the influence this increased action has in producing an afflux of blood. These are precisely the views of BICHAT, and modern pathologists, though the latter have on this, and other points, very clearly developed and greatly improved the hints of our author.

With these observations we close this article,—intending to take up on a future occasion, the pathological views of BORDEU, which are entitled to considerable attention. Regarding, also, his works on the critical pulse, and cellular membrane, as worthy of notice, we shall in a subsequent number devote a few pages to an analysis of their contents.

## BIOGRAPHY.

### Article XV.—*A short Biographical sketch of the late Professor* Beclard, *of Paris.*

There are probably few only of the readers of this Journal, to whom the name of Beclard, whose recent loss, the medical profession of France, and indeed of the civilized world, will long deplore, is not advantageously known. The medical periodicals of our country, and more particularly the translation of his valuable appendix to Bichat's Anatomie Générale, by our countryman, Dr. Hayward, have contributed to spread his justly merited fame throughout these states. This circumstance leading us to think, that a condensed account of the principal events of his life would be read with interest, we have taken the liberty to offer one, compiled from such materials as we have found in the *Archives générale*, and other Journals.

Peter Augustine Beclard, was born at Angers, on the 12th of October, 1785. His father, a respectable tradesman of that city, but on whom fortune had not extended her favours, encouraged by the disposition he early manifested, sent him to the central school of that city, and bestowed on him as good an education as his limited means allowed. Young Beclard soon displayed a decided taste for the study of the natural sciences, and devoting himself with particular care to the acquisition of Botanical knowledge, was honoured with several prizes at the *Jardin des plantes* of Angers. With an evident inclination for intellectual pursuits, however, he was destined to pursue the same career as his father, and with this intention was sent to Nantz, and afterwards to Tours, where he was compelled to engage in business. But notwithstanding all the entreaties and exertions of his friends, and in defiance of his own efforts to comply with the wishes of his beloved parents, Beclard was unable to control the strong bias of his genius, and repress the intenseness of his thirst for knowledge,—and to this cause, we must refer the rescue from the drudgery of a commercial life, of a mind intended by nature to move conspicuously in a more elevated sphere. Nor were the period and existing circumstances less propitious to the accomplishment of this important end. The Revolution had removed all the obsta-

cles which were occasionally encountered by individuals of the *tiers etat* who aspired to the honours of the Doctorate; and the celebrated BICHAT had already attained the zenith of his glory. His name and works were subjects of general conversation, even in the remotest provinces of France, and therefore could not long remain unknown to one, so diligently employed in the cultivation of scientific subjects. Animated by a noble ambition, BECLARD felt on many occasions, a degree of envy of the fame enjoyed by this great physiologist, and from this moment seems to have manifested an irresistible desire to engage in the same pursuits.

Unable at last to repress his son's ardent thirst after knowledge, and positively assured by the tradesman to whom the latter had been entrusted, that he was totally unfit for a commercial life, the father allowed him, though reluctantly, to prosecute the study of Medicine, and afforded him the means of attending the course of instruction delivered at the Hotel Dieu of Angers. Finding himself, now, placed on a field more congenial to his disposition, BECLARD engaged in the study of Anatomical and Surgical sciences with the most unremitting zeal, and in the course of *one* year was deemed sufficiently advanced to be admitted as one of the house pupils of that institution. After remaining there four years, and acquiring a high character for ability and industry, he repaired to Paris, (in 1808) and soon signalized himself at the various *concourse* of the hospitals of that capital. Obtaining one prize after another at the practical school established by the faculty of medicine, he was pointed out as the most brilliant pupil of that institution, and shortly after, was selected by Mr. ROUX for the office of his assistant lecturer (répétiteur) at La Charité. It was not long before BECLARD, at a public concourse, and in opposition to many able competitors, succeeded, as chef des travaux anatomique to M. DUPUYTREN, who had just been promoted to the chair of operative surgery, vacated by the death of the celebrated SABATIER. About this period, BECLARD began to deliver private lectures on anatomy and surgery, and so great were the talents he displayed in the difficult act of teaching, that his success exceeded the most sanguine expectations.

In the year 1813, BECLARD obtained the honours of the Doctorate, and on this occasion presented a thesis in which he offered several original opinions in anatomy, physiology, and surgery.

Two years afterwards an opportunity presented for displaying his rare surgical talents. A concourse having been opened for the selection of the assistant surgeon of the Hotel Dieu, he offered himself as a candidate for that office, and gave proofs of profound learning and of consummate skill in operative surgery. On this occasion, however, and on this alone, fortune did not smile upon him, for M. MARJOLIN, whose talents were not deemed superior to his, succeeded in obtaining the situation. BECLARD was then appointed surgeon to the hospital of la Pitie, where, to the close of his life, he continued to show the advantages which a thorough knowledge of anatomy, joined to dexterity and great presence of mind, confers on the operator. Finally, in 1818, he was elected by the unanimous votes of his *preceptors*, and according to the wishes of all the pupils, to the chair of anatomy in the Faculty of Medicine of Paris.

After attaining this important station, BECLARD appears to have devoted his whole time, and his whole soul to such a continued series of laborious studies, connected with his office of a teacher, as caused his lectures to be crowded with students, and eventually shortened his existence. Few men appear to have been more devoted to public duty and more ardent in the pursuit of science. As a lecturer, he was clear and precise. His conception was rapid and vigorous,—his memory retentive,—his judgment correct; and if his style was unadorned, the deficiency was compensated by the agreeableness of his elocution. His hearers forgot the professor amidst the richness and the beauty of science which he displayed to them; and some idea may be conceived of his industry, from the fact, that notwithstanding his great abilities and his long familiarity with his subject, the preparation for a single lecture, often occupied him four or five hours. He seems to have had a pure passion for science, unconnected with any strong desire for personal distinction; welcoming knowledge, from whatever source or country it came; and appearing to have been uniformly more desirous to *learn* the truth, than to be the *discoverer* of it.*

In respect to his private character, we find that it was not less distinguished by virtues, than his public one by talent and industry. We are informed, that in conversation, he was not naturally

* London Medical Repository.

of a communicative disposition—a disposition increased by the habit of reading and meditation. But when a stranger had got over the coldness of his exterior, he invariably found him obliging, and ready to aid others by his advice, his knowledge, and access to his valuable library. The loss of BECLARD, says one of his biographers, will be felt, particularly at a period when the spirit of party and political feuds has caused such deplorable results in medical institutions. Amidst conflicting parties and opinions, such was the high estimation of his talents and character, that he was selected, on all occasions, as the mediator and judge. He was, himself, on the point of falling a victim to one of those political re-actions from the influence of which, sciences ought to be shielded. In devoting himself, as he did, entirely to the duties of his chair, and neglecting to profit by those lucrative advantages which his great surgical talents afforded him in the world, BECLARD had sacrificed his pecuniary interests. When it was thought proper to re-organize the faculty of medicine in 1823, very general anxiety was felt for the probable removal of the professor, who was truly its support and brightest ornament; but notwithstanding some intrigue and manœuvring, his commanding merit preserved him his chair in the newly modelled school.

In the midst of his labours and duties, in the prime of his life, and in the height of his fame, BECLARD was attacked by a disease, which, in eleven days, deprived his family of his protection, and his pupils and country of his services. Too great an assiduity in his arduous pursuits, had for some time impaired his health, and brought on several times, the symptoms of a chronic inflammation of the stomach, which had yielded to an appropriate treatment. The same causes at last, gave rise to an acute affection of the brain, preceded by, or accompanied with, erysipelas of the head, which, notwithstanding all that art or friendship could suggest, terminated fatally on the 16th of March. In the early period of his disease, and afterwards, during its remissions, he formed a just opinion of the danger of his condition, and established the diagnosis with great calmness and precision. With every thing to attach him to life, and every capability of enjoying existence, he saw the sure approach of death and met it, if not with indifference, at least with becoming firmness and resignation. On dissection, the brain and its membranes were found highly injected.

The stomach presented the cicatrization of a small ulcer, which had destroyed a portion of the two internal coats of that viscus. The cerebral mass was very large, especially in its anterior lobes, which contrasted in a very striking manner with the moderate development of the posterior lobes.

His chief published works are, a memoir sur les Acéphales; a memoir of considerable length, sur les Blessures des Vaisseaux, inserted among those of the society of Emulation of Paris; a memoir on osteology, the fruit of much observation and research; a thesis on embryology, published in the name of his brother; numerous experiments on local affections of the nerves, commenced in 1822, and lately published in a thesis by Mr. Descot; and a work on general anatomy, for the use of students. He was the author of most of the articles on anatomy contained in the *Nouveau Dictionaire de Médicine;* as well as of several papers contained in the *Bulletins de la Societe d'Emulation.* He also published an appendix to Bichat's *Anatomie Générale.* Assisted by M. Jules Cloquet, he translated Mr. Lawrence's work on Hernia; and in conjunction with the same author, commenced a series of anatomical plates, an undertaking, however, which his many occupations did not permit him to continue.

Beclard suggested and performed several new operations; among which may be noticed, a new method of performing partial amputation of the foot; the extirpation of the parotid gland; a new mode of curing the fistula of the parotid canal; various methods for disarticulating the bones, or for amputating the extremities at the joints, &c., and a modification of the operation of lythotomy as originally proposed by Celsus.

The general anxiety manifested by all classes in Paris on the intelligence of his disease, and the public gloom on the occasion of his death, must be regarded as conclusive evidences of the esteem in which Beclard was held, and the most unequivocal eulogium on his talents and virtues. Nor did the attention paid him during life, cease with it; for every individual who had considered him as entitled to his regard, hastened to pay to his mortal remains the last honours. From this cause, his funeral presented a scene at once affecting and imposing. It was attended by the faculty of medicine; a deputation from the Royal Academy; the different medical societies; a crowd of colleagues and friends; and more than two thousand students, who anxious to offer a last

proof of their love and respect for their master, demanded and obtained the honour of bearing his body to the grave. Thus formed, the procession, passing through the greater part of Paris, proceeded to that beautiful place of repose for the dead, the cemetery of Pere La Chaise, where various honours were paid to the defunct. First M. PELLETAN, in the name of the faculty of medicine; then M. PARISET, in the name of the Academy; then M. ROUX, in the name of the section of surgery; then M. ADELON, in the name of the numerous friends of the deceased, and lastly, a young pupil, M. RIDARD of Angier, in the name of the class, deplored the end of a life which had been so useful and so short, and enumerated the talents and virtues of the dead. After this, his pupils terminated their pious office by covering the precious remains with earth, and closing the grave with their own hands.

Our present limits will not allow us to offer here all the extracts from the different *eloges* pronounced over the grave of BECLARD, which are contained in the French periodicals; but we cannot refuse ourselves the pleasure of translating the following delicate comparison by which Mr. ROUX concluded his remarks:—

"The large concourse of pupils assembled around this coffin—the earnestness they have manifested to accompany with us, to his last abode, the teacher whose voice they heard not many days since—whose lectures filled them with admiration, whilst they inspired them with a taste for study, and implanted in their minds the germs of useful knowledge;—the tears which I see them shed—the sincere affliction I see depicted in all countenances, and the few words I have said respecting the brilliant, but so short career of our colleague and friend—all these, gentlemen, recall involuntarily to my mind the not less painful day, when paying to BICHAT the last duties, I deposited on his tomb the last homage of a pupil he cherished. BECLARD lived a few years longer than BICHAT; but as the latter, he has merely *passed* among us. Like BICHAT, he doubtless fell a victim to an excessive application. Like BICHAT, he formed numerous disciples—like BICHAT, of whom he did not, perhaps, possess the creative genius, but to whom he was superior in other respects, he leaves behind him durable testimonials of a true and rare talent. Like BICHAT, BECLARD will be ranked among those men, of whom nature is avaricious, and of whom the sciences have reason to be proud. Like BICHAT, he carries along with him the regrets of students, who eagerly sought to hear him. Finally, like BICHAT, he perceives his coffin surrounded with numerous friends, and his death plunge into affliction all who are able to appreciate, equally with talent, pure morals, integrity, and goodness of heart,—qualities which our colleague possessed in the highest degree."

## QUARTERLY SUMMARY

### OF IMPROVEMENTS IN MEDICINE AND SURGERY.

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### ANATOMY.

1. Dr. GRANVILLE's *Mummy*.—The conclusion of Dr. GRANVILLE's paper, mentioned in our last, as described to us in a London periodical, is so curious a specimen of anatomical research, that we conceive it will be interesting to our readers to receive a cursory notice of it.

Some of the means by which Dr. G. reaches different conclusions respecting this mummy, are almost as ingenious as those ascribed by our domestic traditions to the Indians of our country, when in pursuit of their enemies. Thus he argues, that she died between 50 and 55 years of age, after bearing children; from the "thinning of the centre of the plates of the ilia," noted by Professor CHAUSSIER to take place under those circumstances after the 40th year of age, and to reach its maximum about 55. She died of "ovarian dropsy, with structural derangement of the uterine system generally;"—because the womb is of larger dimensions than usual at that age, the ovarium and round ligament of the right side are enveloped in a mass of diseased structure, and the remains of an ovarian sac are found on the left. We presume the Egyptians, notwithstanding their perfection in bandaging, had not anticipated our correspondent, Dr. ALBAN G. SMITH, and the others who have extirpated ovaria. *Porrigo decalvans* was found on the head; and the head had been shaved. "These are highly interesting inquiries," says Dr. GRANVILLE, and we acknowledge that they have piqued our curiosity. The bandages which enveloped this mummy were steeped in a vegetable astringent matter; and the skin was tanned. Saline crystals, exhibiting nitrate of potash, carbonate, sulphate, and muriate of soda, and traces of lime, were found on almost every part of the body, externally and internally. Dr. G. conjectures, that the water of the Natron lakes was employed, and that the earthy masses found in the abdomen were mud from these latter. The cuticle was removed, as Dr. G. supposes, by the lime, previously to tanning. The body was thoroughly imbued with a mixture of resin and wax, so as to penetrate between "closely adhering folds" of the peritoneum. Dr. G. concludes, that the body must have been soaked for a length of time in melted wax and resin. "The joints were found flexible," as well as "the cellular substance," and the two coverings of the spinal marrow. We presume the writer means *parts* of these

substances—we have not the original. The priests who prepared this mummy seem at any rate to have anticipated a part of Mr. JULIUS CLOQUET'S art of *squeletopée*, or of making flexible natural skeletons.

The miracle of the extreme neatness of the Egyptian bandaging is materially diminished by the fact that the materials they employed were *elastic*, and required no duplicature to make them fit.

We analyse the above, not so much as a piece of medical antiquity, as from its being such a curious specimen of analysis—a kind of physiological algebra, which affords an useful exercise for the mind of an anatomist or physician.—*London Medical Repository, November.*

2. *Absence of the iris.*—A case of this deficiency is recorded by Dr. PŒNITZ, of Dresden. No other inconvenience was experienced for the first fifteen years of the life of the patient than a slight tendency to myopia. A cataract then occurred, and was operated upon successfully.—*Bulletin Medicale, Aout.*

3. *Case of obliteration of the superior vena cava.*—Mr. C. E. DECKART, of Breslau, has described a case of entire obliteration of the superior vena cava, from the pressure of an enormous aneurism of the aorta. The circulation was carried on by means of the branches which anastomose between the vertebral and hypogastric veins.—*Bulletin Medicale.*

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## PHYSIOLOGY.

4. *Functions of the different parts of the Brain, in Fish.*—M. FLOURENS, known to us by his experiments on the cerebellum and other parts of the encephalon, has published a series of experiments intended to demonstrate the nature of the different parts of the brain of fishes. M. SERRES, in his superb work, reviewed at some length in our last, has spent much time in endeavouring to classify and compare the strangely arranged forms of the encephalon of these animals, by dissection. M. FLOURENS has endeavoured to show the functions of the same parts, by observing the changes consequent upon their removal. This he considers as the only true test of their nature and analogy to any corresponding parts in other animals. We shall sketch his results. In comparing fishes with superior animals, he concludes that the point in which the brain of the first differs most materially from that of the latter, is that part of the organ which presides over the function of respiration. This appears, by various experiments and by rational conclusions drawn from dissection, principally through the labours of Messrs. FLOURENS and CHARLES BELL, to be, in the higher animals, that longitudinal division of the medulla oblongata from which arise the 8th pair of nerves and the other nerves of respiration. (The respiratory nerves, according to Mr. BELL, may be recollected to be the par vagum, portio dura, spinal accessary, phrenic, and a trunk, called by Mr. BELL, the external respirato-

ry, arising from the cervical nerves and connected with the phrenic.) In fish, M. Flourens found it augmented into a ganglioniform mass, nearly as large as the cerebral hemispheres themselves; and from this ganglion arose the nerves which ran to the gill covers, the *opercula* of the fish's organs of respiration. The reason of this our author considers to be, that respiration is a function incomparably more laborious in fish than in land animals; the first being obliged to employ only the very small quantity of air which is contained in the water that traverses their gills. It thus requires a more energetic nervous influence.

In the *carp*, besides the longitudinal medulla, resembling the medulla oblongata, there are four successive enlargements, in addition to the olfactory lobules. The first, after these, is double, and corresponds to the cerebral hemispheres. Puncturing it causes no convulsions, its removal stupifies the animal, and apparently deprives it of sight and hearing; it gives origin to no nerves, and it unites with the olfactory lobes.

The second pair produces convulsions when irritated, and gives origin to the optic nerves. These are the optic tubercles, long erroneously called the optic *thalami*; but now acknowledged by M. Serres and all the latest writers, to have been correctly pointed out by Spurzheim as identical with the *corpora quadrigemina* of the human subject.

The third enlargement is single; it gives origin to no nerves, and produces no convulsions; its removal produces the same disturbance in the harmony of the movements of the animal, which were previously observed by M. Flourens in that of the cerebellum of the mammifera. It is considered identical with the last named organ.

The fourth enlargement consists of a middle tubercle and two lateral masses; when punctured, it produces convulsions in the respiratory organs; (viz. in the opercula;) it supplies all the nerves of the opercula; its removal, in fine, stops the motions of respiration. It is therefore considered to be a cerebral organ of respiration, and to correspond to that part of the medulla oblongata which gives origin to the respiratory nerves in man and quadrupeds. The section of either lateral mass suppressed respiration on that side, and the removal of the whole, or the simply slitting the middle portion longitudinally, destroyed respiration altogether.

In the *eel pout*, (la lotte,) there were: first, two ganglions representing the hemispheres; next, two others, being the optic tubercles; and lastly, the cerebellum, being a single body. Two lateral enlargements of the medulla oblongata were here found to be the organ of respiratory influence. The bream, the tench, and several other species of the genus cyprinus, resembled the carp, both in structure and in the effects of excision of these parts.

In the pike, there was no respiratory lobe; the cerebral hemispheres were here larger, and the effects of their removal more striking.

In the eel, there are five successive organs: the two first pair of lobes our author considers to be both olfactory lobes; the next the hemispheres;

the next the optic tubercles, and the next organ a single cerebellum without respiratory lobes.—*Experiences sur la systeme nerveux, par P. Flourens.*

5. *Cicatrization of wounds of the brain.*—In the course of M. Flourens' experiments, he had frequent occasion to witness the healing of wounds inflicted on various parts of the brain. He subsequently repeated some of these operations, with the express view of observing the manner in which injuries are repaired. His conclusions, most of which appear fully warranted by the details with which he has furnished us, are as follows:

Wounds of the brain with loss of substance, are followed by a fine and smooth cicatrix of the mutilated surface.

Wounds producing simple division, merely unite by the immediate reunion of the divided parts.

When a ventricle is deprived of its superior paries, the cavity is again completed, and the surface which covered it, renewed, by the extension of its lateral parietes.

When the destroyed substance is re-produced, the animal regains the functions of the part removed; unless the amount destroyed exceed certain limits. M. Flourens judges of this very difficult question by the fact that the animal recovers to a partial extent, from the stupor which had been originally produced by the injury. In one case, also, the animal recovered the use of an eye.

New bone and new skin are formed; and, as our author says, new *species* of them. While cicatrizing, the wound is protected by a crust of some sort; either, as is most commonly the case, by a stratum of dried blood, or, if this be removed, by a portion of dried lymph, or by a piece of bone or skin. Great abundance of a transparent lymph is found beneath this protecting substance, and it escapes when an opening is made. The healing surface is covered with *lardaceous* granulations, and thickly bestrown with red points and streaks. The experiments were made on ducks and fowls.

6. *Functions of different parts of the organ of hearing.*—The intricacy of this organ, as well as the variety of its forms in animals of different tribes, have long excited the wonder of the curious.

M. Flourens has succeeded in extracting or destroying, with much less collateral injury than could have been anticipated, the different parts of the organ of hearing, in pigeons. After removing the skin, muscles, ligaments, and a few small bony pieces, the membrana tympani comes fully into view, and can be easily destroyed. The first three bones can be separated afterwards, as well as the membranes covering the foramina rotundum and ovale. By leaving the larger and posterior portion of the membrana tympani, the stapes can be dislocated from the foramen ovale and turned in another direction. The semicircular canals and the imperfect cochlea lie posterior to the tympanum; and access to them may be had from the external surface of the cranium, by cutting through a structure of cellular bone. Finally, a small imperfection exists in the bony envelope of the vestibule, in the direction of this cellular portion of the bone; and

Mr. F. succeeded in introducing a needle by this route, so as to destroy the sacs contained within the vestibule, without injuring its parietes.

Neither the destruction of the *tympanum*, nor that of the *three first bones*, materially injured the hearing. By the removal of the *stapes* it was much enfeebled. The destruction of the *membranes* covering the *foramina rotundum* and *ovale*, enfeebled it still more. The restoration of the stapes, while still in connection with the larger half of the membrana tympani, restored a portion of the power of hearing. The division of the semicircular canals apparently rendered the hearing confused and painful; and produced the singular effect of a violent and rapid agitation of the head from side to side. The removal of the immediate covering of the vestibule did not materially affect the hearing. The injury done to the contents of the vestibule, on the other hand, affected the hearing in a degree precisely proportioned to its extent; and the destruction of the whole of its contents completely put an end to the function of hearing. Wounds of the vestibule were not materially painful; while those of the semicircular canals were acutely so, and produced the singular agitation above alluded to.

The destruction or removal of any of the parts internal to the first three bones, though not immediately followed by the destruction of hearing, were uniformly productive of that effect, after a longer or shorter period of time. Of these parts, the stapes was that which the power of hearing survived the longest. These experiments were tried on both sides at once; and the bird was blindfolded, and a screen placed between her and the means by which sound was produced; with other precautions to prevent the animal perceiving any cause of disturbance by means of her other senses.

7. *Singular agitation of the head, produced by the section of the semicircular canals.*—This effect, mentioned above, gradually subsided: but was reproduced the moment the animal attempted to perform the slightest movement. The pigeon saw, heard, and appeared to preserve all its intellectual and sensitive faculties. When, however, the agitation became violent, all regularity of motion was at an end; and the bird appeared to be in a state resembling that of a man rendered giddy by long turning round on a pivot.

8. *Action of poisons on vegetables.*—Mr. F. Marcet has found that poisons act on vegetables in a manner very similar to that in which they affect animals. Thus various mineral substances appear to act by a kind of corrosive power, and some vegetable poisons in a manner more resembling that of a narcotic; if this language can be employed in speaking of an application made to a being possessed of no nervous system. Arsenic, copper, lead, mercury, tin, baryta, potass, and sulphuric acid—all poisoned kidney-beans; and arsenic was discovered in the leaves and flowers.—*Lond. Jour. of Science.—Edinb. Jour. of Sciences, and Lond. Med. Repos. for Nov.*—1825.

9. *Quantity of blood in the whole body.*—Dr. Krimer, in a physiological essay on the blood, after much matter not apparently very original, reduces the estimated amount of the blood in the body, from 25 to 10 pounds.

We have not his reasons for this judgment; reading only a brief notice of his book, by M. Hollard, of Paris.—*Bulletin de Ferussac.*

10. *Generation. Spermatic animalcules.*—MM. Prevost & Dumas are busily engaged in this curious subject; which has long been thought so *unfruitful* by the greater number of medical men. Their results are highly curious. Not succeeding in their first trials made on warm-blooded animals, they have had recourse to frogs. MM. P. & D. endeavour to show, in a preliminary chapter, that their inferences are equally applicable to reptiles, birds, and mammalia.—We are obliged, for the present, to postpone their results.

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## PATHOLOGY.

11. *Disease from spurred rye.*—Mr. Theodore F. King, house surgeon of the New York Penitentiary, describes 32 cases of morbid affection from this cause, occurring in that prison, in the fall of last year. Small livid spots made their appearance on one or both of the lower extremities, generally about the foot, without any local pain or weakness, or any perceptible general indisposition. After a few days, they could become more numerous, and extend up to the knee. Pain now occurred—in one case very severe; and in some instances, the patient lost the use of his lower extremities. The pulse was feeble, and seldom exceeded 100 in a minute. The face had a peculiar livid appearance. No unusual heat of the skin occurred. The tongue was slightly coated and "very flabby." In several cases, there were considerable sores about the mouth, and, in two or three hæmorrhage from the gums; bowels generally regular; urine natural; death always preceded by "severe colicky pains;" usual duration of the disease about four weeks. *Ten* cases proved fatal. No mention is made of uterine pains occurring among sixteen females.

The only dissection made exhibited the intestines studded with dark, livid spots, in the greatest abundance upon the large intestines, and the stomach inflamed, with a discoloration upon the under and larger portion. The uterus was natural.

Has any one ascertained whether our ergot be or be not a different species from that of Europe? We have here, among thirty-two patients, not a single case of gangrene recorded.—*N. Y. Med. & Phys. Jour. No.* 16.

12. *Vomiting of a substance resembling chocolate.*—Dr. Baillie, saw a number of instances in which the stomach threw up a large quantity of a fluid resembling *cocoa.* (Chocolate, we presume, or *cacao.*) A quart would be discharged at a time; and frequently this would be repeated for months together. This condition of the stomach is sometimes connected with a diseased liver; but not unfrequently is apparently independent of it. In some instances it proved fatal; but in others, and especially in two cases, the complaint subsided for several months at a time, and the patient enjoyed toler-

able health. This state (of alternate relapse and recovery) continued many years. In one case Dr. BAILLIE examined the stomach after death. It was very capacious, and was half filled by this brown fluid; but did not appear to be at all diseased in its structure. The neighbouring viscera, as the liver and spleen, were, *as far as Dr.* BAILLIE *recollects*, (this does not sound like the great morbid anatomist,) perfectly sound. The fluid would appear to be formed by a diseased secretion of the inner coat of the stomach. In some cases the power of digestion appears entirely destroyed, and the patient becomes pale and emaciated; though no local disease can be detected by an external examination. The disease is little affected by remedies. Tincture of kino or catechu, with laudanum, at the same time preventing costiveness, and, in one case, the Bath waters, were remedies, which "seemed to produce some benefit."—*Lectures and Observations in Medicine; by the late* MATTHEW BAILLIE, *M. D. &c.*

13. *Non-contagious nature of yellow fever.*—Dr. COSTA, who had been physician to a Lazaretto, at Barcelona, read a memoir before the Royal Institute of France; in which, after reciting many facts and observations, to prove the yellow fever not to be contagious, he proceeds to offer, in conjunction with MM. LASSIS and LASSERRE, to *wear the clothes* of persons who shall have died of this disease at Havannah; the clothes to be sent to France, hermetically sealed, and no means of disinfection to be used.—*Revue Medicale, Aout.*

14. *Hydrophobia, from a cause other than the bite of a rabid animal.*—Dr. WHYMPER has published a case, in which a soldier, while in a violent perspiration, plunged into the sea, and remained in it for an hour and a half, in search of some fishing tackle. He was affected with violent symptoms, entirely resembling those of the above named disease; of which he died after about three days.

Dr. WHYMPER mentions as an exception, the absence of the *cupiditas mordendi;* but describes gnashing of the teeth, as liable to have been mistaken for it. This was exactly the case in the only unquestionable instance of this rare disease, which has occurred under our own view.—*Lond. Med. & Phys. Jour. Nov.*—1825.

15. "*Irritative fever,*" *from wounds, at Plymouth Dock Yard.*—Dr. JOHN BUTTER, has published a work in 300 pages, on a most singular and a fatal epidemic, if so it may be termed, which occurred among the workmen at Plymouth Dock Yard, in 1824. All the patients became ill after receiving injuries, frequently of a trifling nature. The general character of the disease was "that of excitement of the nervous, absorbent and sanguiferous systems." Injuries, such as the crushing of a finger, the scraping off of a piece of skin, or a puncture with a dissecting needle, (as in the case of Dr. JAMES BELL, the surgeon to the Dock Yard,) were followed by fever accompanied by 1st, inflammation of the absorbent system; 2dly, cellular inflammation and suppuration; 3dly, erysipelas and vesications and sometimes gangrene; 4thly, erythematous patches; and 5thly, intense local pain,

without redness. The men generally continued at work for some time after injury was received. *Most of the cases* terminated fatally within 15 days. The attack was "ushered in by chilliness or shivering, succeeded by a quick pulse, increased heat, disordered functions, nausea, sickness, fainting, and diminution of strength." It generally became typhoid in its course, and was frequently considered to be common fever, till after the abrasion or other slight local injury was recollected. The local inflammation was in every instance of an erysipelatous or erythematous nature; with a strong tendency to gangrene.

The dissections showed great marks of visceral irritation; as abscesses &c. &c.; and in the two autopsies given in the review from which we quote, there was a violent mucous *enteritis*.

The writer of this note has twice seen erysipelas epidemic in an hospital; in most cases supervening on wounds, in others apparently constitutional. —*Vide Lond. Med. Repos. Nov.* 1825.

16. "*Dry Belly-ache*" *of the West Indies. Hepatic ileus.*—Dr. Anthony Musgrave, of Antigua, believes that this disease has been neglected by writers; having been generally classed along with colica pictonum. Its whole pathology and treatment are complete *terra incognita*, and a pupil of the English school is totally unprepared to control it. It is perhaps the severest, in point of suffering, to which the inhabitants of the West India isles are subject; and, notwithstanding Dr. Chisholm's assertion to the contrary, has been for several years, of very frequent occurrence in Antigua.

The patient, at an early stage, complains of an uneasy sense of distension behind the ensiform cartilage; of loss of appetite, a feeling of listlessness, and of disturbed rest. A slight expression of anxiety is visible in the countenance, his tongue is clean, his skin cool and comfortable, his pulse either unaltered, or reduced in frequency and increased in strength. His urine, "*if examined, is probably*" high-coloured and scanty; he affirms his bowels to be regularly open. This may continue for a week or more; then the pain increases, shooting upwards across the chest, nausea, vomiting of porraceous matter, an annoying, twisting pain about the umbilicus, occur. In about 24 hours from this, constipation is complete, and excessive irritability of the stomach takes place. No bile is now discharged; and bilious stools, in the more advanced stages, are *a peculiarly favourable indication*.

The tongue is nearly clean, or with "frothy vesicles over a whitish surface, which can hardly be said to be coated." Contraction and acceleration of the pulse, febrile heat and a parched tongue, with an unsubdued constipation, enlargement and soreness of the abdomen, hickup, cold perspiration in the extremities, hurried respiration and the subsidence of the pain—these are signs of the greatest severity, and of the approach of death. Enormous liquid motions, having a highly offensive smell, are discharged with great violence, within a few hours of the close.

Relief was seldom found, in our author's practice, till the mouth was

mercurially affected. The best symptom, besides general moderation in the whole disease, is the discharge of copious bilious stools, variously vitiated.

Dr. MUSGRAVE, attributes this disease to the use of rum. Hepatic congestion was found in all the autopsies, and marks of intestinal inflammation and its consequences, in a *majority* of cases; and the termination of the disease is very commonly by mortification. Some cases afforded "little evidence of visceral mischief," except in the liver, which was as above. The number of cases dissected was not large.—*Lond. Med. Repos. Nov.* 1825.

17. *Nature of the pustules in Small Pox.*—Mr. M. L. DESLANDES, in a memoir on this subject, comes to the following conclusions.

That the principal means of adherence between the cutis and epidermis is afforded by the secretory ducts which open on its surface.

That the sebaceous matter which is discharged from these ducts may be the residuum of the evaporation of the matter of perspiration.

That the depressions visible on the skin, when beginning to swell, are owing to the attachment of these ducts or tubes. That this is the cause of the central depression of the pustules of small pox.

That each pustule has for its basis one or more excretory duct.

That pustules are either *infiltrated* or they are minute *abscesses:* (infiltrées or abcedeés; a distinction much like that of Mr. JOHN HUNTER, between abscess *in* a part, and abscess *of* a part.) The infiltrated pustules are flat, and penetrate much more deeply into the skin than the other species. They are the most dangerous, and particularly affect the face.

That there is sloughing in almost every pustule of small pox; and that the large crusts which frequently separate from the skin, are really extensive sloughs of the surface of the cutis.

That in all small pox there is considerable absorption of pus.

That the black colour of the sloughs arises from exposure to the air.

That suppuration commences very early; generally on the second, or even the first day.

That the areolæ of these pustules always lose their vermilion colour in proportion to the period of time elapsed since the commencement of the disease.—*Revue Medicale, Sept.*

18. *Ulcers of the Intestines in fevers of long duration.*—Dr. TROLLIER, of the Hotel Dieu of Lyons, has given accounts of two subjects, in which he found ulcers of the mucous membrane in every stage at the same time, from their first commencement to such a complete cicatrization as left no other proof of their existence than a faint brownish circle; marking where the thickened edge of the ulceration had first been. The accounts are such as we cannot impeach, without attacking the author's veracity, or without a far more minute examination of the mucous membrane, than is generally made among us. Dr. T.'s observations are only part of a copious list by different authors, which this place does not afford sufficient room to describe.—*Archives.*

19. *Natural colour of the mucous membrane of the Stomach and Intestines. Is redness in them a proof of disease?*—Those who have been in the habit of attending the Philadelphia Medical Society during the last two or three years, will well recollect many debates upon the fundamental principles of the doctrines of BROUSSAIS; or rather upon the question, whether many of the symptoms of fever were owing to an inflammation of the mucous membrane of the alimentary canal. To the upholders of this belief, were constantly objected the observations of Dr. YELLOLY, published in the Medico-Chirurgical Transactions, and those of Dr. PARRISH, of this city, made on hogs bled to death. In all these cases, and whatever the disease or injury of which Dr. YELLOLY's patients died, redness, more or less extensive, was found in the stomach; and it was inferred from this, that this discoloration was by no means a proof of disease. Another argument was drawn from *stains;* and a piece of dura mater stained with blood, was exhibited in the society. Most of Dr. YELLOLY's cases were accompanied with febrile symptoms of that sort which Dr. BROUSSAIS and his school refer to a mucous gastritis or gastro-enteritis; and of those who suffered a violent death, as well as of the hogs examined by Dr. PARRISH, we are not told whether they had *taken food;* which circumstance, according to Mr. BILLARD, is at all times competent to produce redness. (It is proper to remark, that, notwithstanding the very high importance of this inquiry, the doctrine of mucous gastritis does not rest exclusively on redness, but on many other appearances.) The author, whose name we have just cited, and of whose conclusions we are about to present an analysis, is a *Student* of Medicine; and a house pupil of the hospitals of Angers, in France. His researches are apparently an honourable example of diligence and industry—of the eager and careful employment of opportunity; and of a philosophical caution, and yet a promptitude in drawing inferences.

To discover the state of the mucous membrane during health, is obviously a task as difficult as it is important. In the strict meaning of the term it is perhaps absolutely impossible. "The crimson house of life" is too well guarded from our sight, to permit us to know what is the condition of its interior during life's existence. Unless some poor fellow's stomach be opened, upon the field of battle, for example, and the surgeon have leisure enough to inspect its interior, a thing of very improbable occurrence; we shall know nothing of the inner coat of that viscus, while yet in its living state. But for our pathological researches, it is sufficient to know what are the appearances left *after a death* produced by some cause which could not have inflamed the inner surface of the stomach. This task is also difficult, from the extensive sympathies of the organ, by none so fully developed as by those who have caught ideas from Dr. BROUSSAIS. We shall show with what materials Mr. BILLARD has endeavoured to settle this point.

Of healthy looking *fœtuses* there is little doubt, particularly as they are generally destroyed by accidents external to them. The inferences are be-

sides confirmed by the constancy and similarity of the results. A child at the *full period* was killed during delivery; one at 22 months of age, by an injury of the head, during the existence of good health. The next died of acute arcahnitis, of 5 days duration—not quite so clear a case, we should think; and accordingly an unusual redness was found in the duodenum, the rest of the alimentary canal resembling that of the others. Another child was killed by a musket-shot, three more by the bursting of a cannon, a young man by throwing himself from a window, another man by an injury of the chest which extinguished life within an hour, another by a fall, which produced a rupture of the aorta, another by hanging himself, and another by suffocation from eating too fast.

Having thus given a view of the necessity and the nature of the evidence adduced by Mr. Billard, to confirm the applicability of his observations, the limits of this part of our task will permit no further abstract, excepting a general statement of his results.

The colour of the *stomach* in the *adult* is usually *whitish;* that of the *duodenum* and *jejunum white, verging to ash-colour;* this ash-colour terminates at the *conclusion of the ilium,* and the membrane becomes whiter in the great intestine. *Yellow patches* are sometimes observed, which appear not to be inconsistent with a good state of health.

In the *embryo* and *fœtus,* the membrane is *rose-coloured;* except in the large intestines, where it is generally *green*—supposed to be stained so by the meconium.

In *infancy,* the mucous membrane is of a *milk-white.*

In *adolescence,* of a *less brilliant white;* and, in the *adult,* of a *white, verging to ash.* In *elderly persons,* the ash is more striking; except in extreme age, the colour in which is omitted by those from whom we are compiling.

If there be any impediment to the circulation, the veins situated beneath the mucous membrane, are enlarged; and their situation and blue colour renders them very easy to distinguish from redness of the membrane itself; as is remarked by all the late writers.

*During digestion,* there is a sudden and transient flow of blood to the stomach and duodenum, and sometimes the commencement of the jejunum, producing a rose-colour. This may be found after death.

Of the discrepancy among authors relative to the natural colour of the stomach, one may judge from the following list:—Sabatier calls it a *reddish purple;* Bichat, *reddish;* Gavard, *grey, verging to red;* Boyer, *greyish, with a shade of yellow or red;* Chaussier, Adelon and Cloquet, *marbled red;* Marjolin, *liable to brown or blackish spots;* and Beclard, *varying from white to red.*

Our author further illustrates his views, by quoting and analysing the cases given by Mr. Rousseau, in the *Archives de Medicine,* which he considers coincident with his own.

This paper contains much other curious matter, relative to the usual ap-

pearances of the *valvulæ*, the mucous glands, &c. for which we are not allowed sufficient space.—*London Journals.*

20. *Ovarian Abscess.*—The following communication has been politely addressed to the Editors, by Dr. TAYLOR, of this city.

"On the 26th of January, 1826, I was called to visit Mrs. A. B. aged 35 years, who had, for the last four or five years, been suffering, (as was supposed,) from gradually increasing dropsical symptoms. The previous history of the case, as detailed by the patient, was somewhat singular. She had been under the direction of some respectable physicians of this city, by whom she had been treated for ascites. During the course of the treatment, recourse was had to the operation of paracentesis abdominis; by which merely a small quantity of blood and serum was evacuated. She subsequently entered the Hospital, and there underwent the same operation, with a similar result. From these circumstances, it was considered as a case of encysted dropsy, and treated accordingly.

At the time of my first visit, she was labouring under a harsh cough, accompanied with mucous expectoration, together with great dyspnœa, particularly on motion. Much difficulty was also experienced, when lying in the recumbent posture, so much so as to render it necessary to prop her up in bed. The pulse was weak and somewhat irregular; and she complained much of flatulency and constipation. Her abdomen was unusually large; presenting the appearance of a person labouring under ascites: there was also some œdema of the lower extremities. Fluctuation was very indistinct.

In this urgent state, I ventured to encourage some hope of relief, by the use of purgatives of gamboge and super-tartrate of potash; inasmuch as the state of the bowels indicated their employment as an incipient step in the treatment. After the operation of the first purgative, she was soon able to lie in a horizontal position, and to walk across the room. The purgatives were continued for a day or two longer, apparently with much advantage. Diuretics were exhibited for a few days, and a copious diuresis was the consequence. On the 31st of January, the patient was submitted to the care of my friend Dr. WILTBANK, who deemed it proper, from the then existing symptoms, to administer tonic remedies, which were persisted in until her death, which unexpectedly took place on the 3d of February.

From the interesting history of the case, we were particularly desirous of making a *post mortem examination:* which was accordingly proposed, and was submitted to by the friends of the deceased. Dr. WILTBANK and myself commenced the dissection, by making a longitudinal incision along the whole course of the linea alba. In the first place, the anterior part of the abdomen presented an unusual degree of thickness, at least two inches; although the skin and adipose substance appeared very thin. Upon continuing the dissection still further, under an expectation of entering the cavity of the peritoneum, we were considerably surprised at the ejection of a large stream of genuine pus. The unexpected and sudden discharge of

this immense quantity of purulent matter induced us to apply for aid to some more experienced anatomists. In consequence of which, Drs. Horner and Hodge were called upon, and politely proffered their services. The whole of the pus being discharged, which amounted to the almost incredible quantity of *four gallons*, we proceeded to the examination of the tumour containing it. On separating it from its adhesions to the surrounding parts, it was discovered to be the right ovarium, completely altered in its organization—occupying all the cavity of the abdomen below the margin of the thorax,—protruding the intestines, liver, &c. very high within the cavity of the ribs; and when removed and emptied of its contents, weighing *seventeen pounds*. The vascularity of the tumour was remarkable,—arteries and veins, as might have been conjectured, running in every direction.

After having completed the examination of the ovarium, our attention was next directed to the state of the uterus; which, contrary to our expectation, presented a perfectly natural and healthy appearance. The other contents of the abdomen were found, with the exception of some adhesions and thickening of the coats of the intestines, in a natural state.

The tumour has been preserved, and presented to Dr. Horner, who has granted it a place in the valuable Anatomical Museum of the University."

OTHNIEL H. TAYLOR.

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## PRACTICE OF MEDICINE, THERAPEUTICS, AND MATERIA MEDICA.

21. *Remedial effects of Galvanism.*—The application of galvanism to the treatment of disease has, at various periods, occupied the attention of physicians, and been often regarded as, of itself, capable of curing many diseases. As too often happens however to other means, some failures caused it to be nearly abandoned, and nothing was heard of its virtues until within a short time. M.M. Bailly and Meyranx have lately called the attention of the profession to this powerful therapeutical agent, and more particularly to a new method of introducing the fluid. The memoir before us is the mere *avant coureur* of a more elaborate work, which these gentlemen intend publishing soon on the subject. Their method consists in introducing the galvanic fluid through the medium of the acupuncturation needles as conductors. The diseases cured are rheumatism, neuralgia, and chorea. We shall transcribe here in detail, the case of chorea, in order that the reader may form some idea of the efficacy of the method, and of the manner in which the galvanic fluid is applied.

"Miss —— aged 12 years, having suffered much, at the period of dentition, was seized with convulsive movements, which at first assumed the intermittent type, and affected only the muscles of the right cheek. Soon after, the convulsions became almost continued, and extended to the

shoulder of the same side; the parts affected were very sensible. Baths of a moderate temperature, a mild regimen, and pills composed of camphor and valerian, were prescribed without benefit. At the age of seven years, all the characteristic symptoms of the disease became more intense; opiates, vegetable narcotics, assafœtida, calomel, aggravated the muscular disorder. During two years, *flying* blisters and moxas on the lateral parts of the spine were likewise ineffectually used.

The mother of this young lady came one day to consult us at the hospital of La Pitié. The patient presented the following symptoms. The system of nutrition was feeble and languid; the muscles, particularly on the right side, which had fallen away most, were flabby. The disorder of the locomotive system was apparent only on one side; but for two years had made considerable progress; either owing to the successive development of the disease, or to the influence of an energetic stimulation produced by medicine. The contractions and relaxations were continual and rapid; producing singular convulsions and grimaces. The patient did not stutter, but pronounced every word distinctly. She had no fever; and felt no pain. Sometimes, however, she experienced in the affected part, a sensation of numbness, pricking and formication. She complained neither of headach nor dizziness; but could not apply herself long to any thing. Her sleep was light, and frequently interrupted by convulsive movements.

Galvanism was at first administered by simple communication, without the introduction of needles; the affected leg and arm being immersed in two tubs of warm water, in which the two conductors (*rheophores*) terminated. With six plates, the galvanic action was almost null; the patient scarcely feeling a pricking in the parts which served as intermediates to the fluids. We increased the action by adding four plates. Immediately after, agitation of a part of the muscles, slight trembling of the leg, supervened. By rendering the current continued, a sensation of pricking in the passage of the fluid was experienced. The third day, the same operation was repeated in the same manner. These two galvanizations, however, not producing any advantageous change, we prevailed on the patient to submit to the introduction of galvanism, by means of the needles. One of these was consequently introduced near the first and second cervical vertebræ; and a second near the division of the brachial plexus; as it was between these two points, that the muscles were most convulsed. Three pairs of plates developed a sufficient quantity of fluid to excite manifest contractions, as well as pain. The third operation which was continued twenty-five minutes, seemed to diminish the muscular contractions, and the patient informed us two days after, that she derived considerable relief from it. She requested the next day, to be again galvanised. The operation was prolonged during half an hour, and six settings were sufficient to cure a disease, which had resisted the most energetic means that medicine commands."

Agreeably to Drs. Bailly and Meyranx, the present mode of employing the galvanic fluid is not only more powerful than the common method, but

more simple in its application. It moreover saves time; and by it we graduate at will and in a precise manner, the necessary quantity of fluid. The effect also, is more local, and may be applied to any part of the body. —*Archives Generales, Sept.* 1825.

Drs. BAILLY and MEYRANX do not seem to be the only physicians in Paris, who have resorted to this method of introducing the galvanic fluid; for it appears from Mr. SARLANDIERE's recent work entitled "Memoire sur l'Electro-Puncture, &c.," that he employed it, with this difference, however, (if it be a difference) that Drs. B. and M. apply the needles to aid the action of the pile; whereas Mr. S. resorts to galvanism, in order to promote the action of the needles.

In protracted sleep, galvanism has been very successfully used by professor HUFELAND. The subject in whom it was tried, was a young woman twenty years of age, who had slept constantly for six weeks, without taking any nourishment except a little barley water, which was forced down occasionally. All internal means were applied in vain, till galvanism was resorted to; this had no effect whatever, until one conductor was placed upon the epigastrium, and the other in the left ear. These had not been in operation more than two minutes, before colour returned to the face, the eyes opened, the patient raised up and said distinctly "father." From this moment she continued to improve, and had no relapse.—*Hufeland Prac. Heilk. and Med. Recorder, Jan.* 1826.

22. *A case of Gravel cured by Cider.*—Dr. DOUCET, of New York, has published a case illustrative of the effects of cider in the cure of gravel. The patient experienced colic, spasms, and tenesmus, which after five days, degenerated into diarrhœa; he, however, recovered. Some weeks after, he was attacked with the same complaint; "besides a painful sensation in the lumbar regions, with spasmodic movements; a numbness in the right inferior extremity, and a retraction of the right ventricle (*testicle?*). All the pains seemed to terminate in the right thigh; the paroxysms lasted six, seven, eight, nine, or ten days; then ceased and returned in two, three, four, or five weeks." Some months after, he passed much gravel; but when Dr. D. saw him, (July 25th 1825,) he had not passed any for three months; and attributed this exemption to the use of tar water, of which he drank freely. The pains, however, were then violent, and he evacuated, per anum, a thick glairy matter with mucus; after which, he experienced considerable relief. The evacuation of this matter was promoted by means of mild aperients, and of enemata, which brought away large quantities of calcareous matter from his bowels. The gravel returned, and the Doctor was about adopting a chemical mode of treatment, when the patient, after reading in an Albany paper, of a cure effected by the use of new cider, expressed a desire to make a trial of it. He drank *one gallon in twenty-four hours* since the 10th of August, and was completely cured.—*Med. Rec. for Jan.* 1826.

We are not informed, however, when he ceased taking the remedy, and

what effects it produced on the kidneys and bowels; all of which circumstances it was necessary to detail.

23. *On Piperin in Intermittent Fevers.*—Doctor GORDONI has lately published some observations tending to prove the efficacy of Piperin in intermittent fevers. Seven cases are given in detail; in many of which the bark or sulphate of quinine had been administered ineffectually. From these facts Dr. G. concludes, 1st. That *Piperin* cures intermittent fevers in doses of eight and even six grains. 2nd. That administered in powder, it has a more powerful action than in pills. 3d. That it cures fevers that have resisted the sulphate of quinine. 4th. That it prevents relapses more effectually than the quinine.—*Annali Univers. de Med. Milano, Giugnio,* 1825.

24. *Prenanthes Altissima;—an antidote to the virus of the Rattlesnake.*—Some observations have been lately published in a valuable cotemporary, by Dr. JAMES HUBBLE, on the Prenanthes Altissima, "which is universally believed by the inhabitants of certain sections of our country to possess the power of eliminating or counteracting the *virus* produced by the bite of the rattlesnake. (*crotalus horridus,* Lin.) It is called by the people, snake-weed; which name it has probably received from its reputed virtues in curing the bite of that animal." The following case, among others, is given: "G. W. S. aged about fourteen, was bitten by a rattlesnake under the malleolus externus. As the prenanthes could not be immediately obtained, the most excruciating pain, with great swelling and discoloration supervened, attended with nausea, vomiting of bilious matter, and remarkable prostration of strength. By an external and internal administration of the prenanthes, relief was promptly obtained, with a subsidence of pain, tumefaction, and discoloration."

"The mode of administration is simply this: If the bite be recent, an external application of the stalks and leaves bruised together, is sufficient; but if constitutional symptoms have supervened, in addition to the above external application, a strong infusion of the plant is considered necessary to be taken freely."—*New York Medical and Physical Journal. Jan.* 1826.

25. *Effect of Cupping Glasses applied to Poisoned Wounds.*—At a meeting of the Academy of Medicine (Section of Medicine) of Paris, held on the2nd of August, 1825, Mr. BARRY read a note relative to some experiments made by him, and which tend to prove that cups applied to wounds recently poisoned, prevent the absorption of the venomous matter. These experiments consisted in wounds inflicted on the back and thighs of adult rabbits, and into which, when the hemorrhage had ceased, two or three grains of powdered strychnine, or three drops of hydrocyanic acid were introduced. Three, five, or ten minutes after, M. BARRY applied cups on the wounds, and renewed them as soon as they fell. By this means he prevented the animals from experiencing the phenomena usually attending poisoning with these substances; whereas the animal died when the cups were not applied. In one of these cases M. BARRY had waited, before applying the

cups until convulsions had already appeared; nevertheless he succeeded in putting a stop to them, and curing the animal.

The communication of these facts led M. Pariset to inform the society, that he had, that day, received from M. Moricheau-Beauchamp, of Poitier, the account of a case presenting some analogy to the preceding. It was that of an individual bitten by a viper, and who experienced none of the symptoms usually attending these accidents. The means resorted to were leeches applied to the wound. The first leeches applied, died very soon after sucking the blood; the sixth survived, although it had drawn more blood than the preceding ones.

M.M. Orfila, Adelon, and Laennec, were appointed, to ascertain by experiment, the validity of the facts communicated by M.M. Barry and Pariset.—*Archives Generales, Sept.* 1825.

At a subsequent meeting of the Academy, M. Adelon read a report of M. Laennec, upon the above experiments of Dr. Barry, by which we learn that their results have been confirmed by further trials, some of which were made with the white oxide of arsenic, hydrocyanic acid, and the upas tieuté. We learn this from the October number of the Archives Generales.

26. *Acupuncture in Gout.*—Mr. Andrieux gives the history of a man, 49 years of age, who, for ten years, had been affected every six months with gout, which successively attacked the knees, wrists, and joints of the fingers. These parts had become deformed, and the inflammation at each paroxysm continued some time. In the month of December, 1824, the right foot became red, swollen, and very painful. Mr. A. introduced a needle under the skin, at the basis of the small toe, in such a way as to make it come out under the external malleolus. The relief was almost instantaneous, motion and pressure being borne without pain. In order to guard against the recurrence of the pain, Mr. A. introduced a second needle under the malleolus internus, which, after being allowed to remain in ten minutes, was, together with the first, removed. They were both strongly oxydised. The patient was now able to walk with facility; whereas, a quarter of an hour before, the simple contact of the bed clothes was extremely painful.—*Nouvelle Bibliotheque Medicale, Juillet,* 1825.

27. *Acupuncture in Suspended Animation.*—Dr. Antonio Carraro relates, that in the presence of several persons, he plunged a young kitten, eight days old, into cold water. The animal was retained under until all motion had ceased. When withdrawn, the tongue protruded out of the mouth, and was covered with froth—the limbs were stiff—the heart did not beat, and all signs of life had disappeared. When plunged a second time into the water it sunk to the bottom. It was again withdrawn, exposed to the sun, wiped dry with warm clothes. Frictions on the abdomen were next resorted to; but none of these means producing any effect, acupuncture was performed about three quarters of an hour after signs of life had ceased. A needle was passed through the heart, the point resting on the dorsal

vertebræ. In less than five minutes the needle began to be slightly agitated, announcing a movement in the heart. This rapidly increased, and was soon followed by motion of the anterior extremities—next by the act of respiration, cries, and finally by movement of the whole body. Placed in its basket, the animal remained two hours in a very languid state, but at the end of this time, the mother having come to its assistance, warmed, suckled, and re-animated it. From this circumstance, Dr. CARRARO concludes, that this state of debility depended more on the coldness the animal had experienced in the water, than on the puncture of the heart. A month after this experiment the kitten enjoyed excellent health, and displayed all the vivacity of the species.

The same experiment was repeated many times with equal success; from which Dr. C. concludes, that the puncture of the heart is not only a useful, but a safe operation. He expresses his hope that in cases of asphyxia in human subjects, physicians will resort to it in preference to any other means.—*Annali. Univers. di Medic.* 1825.

28. *Colica Pictonum.*—The treatment of the colica pictonum has lately become a subject of warm discussion among the French physicians:—some advocating the notions of BROUSSAIS, and strenuously recommending the antiphlogistic plan—others adhering to the old method of La Charité, which consists in administering large and repeated doses of powerful antimonials and purgatives. In order, if possible, to settle this question, Mr. MIRAMBEAU, of Paris, has lately published in the Revue Medicale for Sept. 1825, some cases, in which antiphlogistics were resorted to ineffectually, and which were afterwards radically cured by the purgative plan. The disease, in all these instances, was occasioned by the use of water, impregnated with the carbonate of lead. We do not pretend to decide in this case; but we must confess that our experience and reasoning would lead us to prefer, were we ourselves the sufferers, the antiphlogistic and narcotic plan, rather than that of La Charité, whether prescribed in the form of the old *macaroni or mochlic*, or of common emeto-purgatives,—and sanctioned by the authority of DELORME, and the early physicians of that hospital, or by the more recent one of Mr. MIRAMBEAU.

29. *Employment of Caustic to destroy the Variolous Eruption.*—In the preceding number of this Journal we offered a short extract from a French periodical, containing an account of Mr. VELPEAU's method of cauterizing the variolous pustules. This method appears to have engaged, to a considerable extent, the attention of the French physicians, and particularly of M. MEYRANX, who read an elaborate article on the subject, to the Institute, on the 16th of August, 1825. This memoir is published in the September number of the Annales de la medicine physiologique. After remarking that M. M. BRETONNEAU, DUMERIL and SERRES, were the first physicians who called the attention of the profession to the *ectrotic* method, or therapeutical means of destroying the variolous pustule; and after indulging in some general remarks on the danger of small pox, &c. Mr. MEYRANX says, "The

numerous observations we have witnessed prove that cauterization, destroys the variolous pustules, only on the first and second day of their appearance. When resorted to on the third or fourth day, or later, it exercises no influeuce on their progress, and they go through their ordinary periods." When the caustic is applied the first or second day, the pustules disappear in less than twenty-four hours, leaving no other trace than a thin scale, which drying from the centre, falls off on the third or fourth day. Several methods are employed to effect this purpose: the one most usually resorted to, consists in washing the face with a solution of the nitrate of silver. On the subject of this method, which he denominates, *method of diffusion*, M. MEYRANX makes the following remarks:

1st. The solution of the nitrate of silver, spread on the face covered with variolous pustules, acts on the diseased and on the healthy parts. A blackish crust, of more or less thickness, according to the chemical agent used, covers the pustules which are to be destroyed, compresses them, and allows the pus they contain to sojourn in them, and attack the mucous and even the dermoid substance.

2d. As the spaces separating the pustules are also cauterized, the cutaneous perspiration is suppressed.

3d. The pain is more acute, and of longer continuance. We have seen patients who found it almost unsufferable twenty-four hours after the operation.

4th. This process of cauterization becomes impracticable when it is necessary to employ it on mucous membranes, as the conjunctiva, lips, interior of the mouth; or on delicate organs, as the interior of the ear, the breast, genital organs, &c. One of its greatest dangers arises from the impossibility of circumscribing, by whatever care, the action of the caustic.

5th. This process exercises no influence on the march and development of the variolous pustules. After the operation, the cauterized tissue, assumes a dark grey colour, which the next day changes to black." This process moreover, does not remedy the deformity, which it was intended to prevent.

In respect to the best method, Mr. MEYRANX remarks, "experience has taught us that the surest method for destroying promptly the variolous pustules, is to open them successively, and to cauterize them with a portion of nitrate of silver, or with the end of a port crayon, armed with a piece of the same caustic, proportioned to the size of the pustule." Mr. M. calls this the *method of introduction*. He prefers opening the pustules with a lancet, to cutting them with a pair of crooked scissors, which is impracticable to do in the early stage of the disease, owing to the smallness of the pustules. It is infinitely more advantageous to make use of the port crayon, than to plunge several times into the opened pustules, a stillet, first dipped into a solution of the nitrate. This process, which has succeeded in the hands of Mr. VELPEAU, does not appear to Mr. MEYRANX, to pene-

trate deep enough, whilst in many instances the solution extends much beyond the limits of the pustule.

M. Meyranx next examines the effects produced according to the kind of caustic used. He decidedly prefers the nitrate of silver, employed in the above way. Whilst using the caustic to destroy the pustules, Mr. M. does not neglect the other means required for the treatment of the disease. He notices that the operation is useful, only when the inflammatory action of either of the three principal viscera, or the skin, has been moderated by antiphlogistic remedies.

When inflammation of this latter tissue predominates, the pustules that are cauterized, become more irritated, and the suppuration sometimes continues longer. Our author further remarks that the operation appears to exercise considerable influence in preventing and even arresting tumefaction of the part of the body on which it is performed. "Pustules supervening on the most delicate and sensible parts, fade, without the least accident by means of the caustic." He has resorted to this remedy for the purpose of destroying pustules on the velum pendulum palati, on the edges of the eye-lids, interior of the nose, and meatus auditorius.

30. Dr. Baillie's *Unpublished Works.*—Dr. Baillie directed in his will, that one hundred and fifty copies of his two Introductory Lectures to the Course of Anatomy, his Lectures on the nervous system, and a short account of his experience in the practice of medicine should be printed, but not published. After giving a copy to each of his intimate medical friends, he bequeathed the rest to the Royal College of Physicians.

*On complaints of the head*, he observes, "many persons of both sexes are affected daily with headachs, of more or less severity, for many months and often for some years. They chiefly prevail towards the middle time of life, but occur often at an earlier period. They may take place in any part of the head, but are more commonly felt in the forehead, or over one eye, or in the back part of the head."

Dr. Baillie has seen no benefit from bleeding, either general or topical, in such cases. Temperate living, avoiding improper diet, the use of purgatives, as rhubarb and soap, and also bitters, calomel in moderate doses followed by Epsom salts and senna, once in two or three weeks, are useful. Some cases are obstinate under any treatment. Cutting the hair close, and the application to the head of a large sponge wrung out of cold water, often give great temporary relief.

*Hydrocephalus.*—Dr. B. says, "I have known in my own experience of but *one case* of this disease being cured when fully formed. I have seen a few cases in which there appeared to be a strong threatening of hydrocephalus, that got well by the application of leeches and blisters to the head, and brisk mercurial purges: but I cannot determine, whether these cases, if less actively treated, would have terminated in true hydrocephalus, or not."

*Tic Douloureux.*—"I do not recollect to have seen any instance in which

it has been *permanently* cured either by internal medicines, or by an operation.

*Quincy.*—Dr. B. recommends us to encourage suppuration in these cases, where one or two applications of leeches do not lessen materially the inflammation of the tonsils and velum pendulum palati. If suppuration be encouraged by inhaling warm vapour, the patient recovers more rapidly and with less pain; for the opposite plan often prolongs, without preventing, the suppurative process.

*Phthisis.*—He has known in the *course of his medical experience*, one or two cases of patients who recovered from phthisis, which was fully formed; and thinks they *might* have been common abscesses, not of a strumous character.

*Angina Pectoris.*—Most constantly depends on ossification of the coronary arteries, and admits no effectual relief from medicine. Two cases exactly resembling angina, depended on imperfect digestion, and the patients ultimately recovered.

31. *Measles.*—Dr. Geo. Hayward describes the measles of 1825 at Boston, as commencing in the latter part of January, and disappearing about the end of July. It began to yield in the beginning of June. It had nothing malignant but yet was of a severe character. There was a strong disposition to sloughing of the integuments after blisters. There was a greater disposition to pneumonia than is common after measles. Some of the worst cases of pneumonia succeeded the mildest attack of measles, and vice versa. The remedies both for the primary and secondary diseases, were emetics, blisters, warm bathing, inhaling aqueous vapour, mild expectorants, and cooling drinks. Cold water was freely allowed. Dr. H. informs us that both the measles and pneumonia were more fatal than in former epidemics. "In the cases of more than two hundred patients that came under my care with the disease the *last* season, blood letting was not employed in a single instance, and every individual recovered. How far the disease *this* season was rendered mild by the regimen, I leave to others to decide." —*New Eng. Journal, Jan.* 1826.

32. *Duration of Intermittents.*—M. Bailly has read to the Institute a Memoir on the duration of intermittent fevers, which after immense researches, he states to be as a mean about two weeks; supposing them to be tertians, as is the case with the great majority, we shall have seven or eight paroxysms for each individual. Mr. B. is satisfied, by post mortem examinations, that these diseases are dependent on internal inflammation; which not only accounts for their ordinary course and duration, but moreover warns the practitioner against the two early use of bark and tonics.

"Intermittent fevers, says he, examined in some thousands of patients, are not found to consist of nervous affections to be arrested at will by medicines or certain therapeutical processes. They have a course to follow, and certain stages to go through, and when they terminate under the employment of medical treatment, to which the honour of the cure is attri-

buted, they only yield spontaneously to remedies which succeed because the disease is already on the point of disappearing."—*Revue Medicale, Aout.* 1825.

33. *Hydrophobia.*—Professor Rossi has cured a case of Hydrophobia produced by the bite of a rabid cat. The wound was inflicted Oct. 22nd, 1824. In the beginning of December symptoms of the disease began to manifest themselves, such as melancholy, fondness of solitude, violent weeping, frightful dreams, loss of appetite, glistening eyes, red face and salivation. The left sublingual gland became enlarged. The sublingual gland was cauterized, on the 10th of Dec. by three applications of a heated iron. This operation was succeeded by some fever, which soon went off, and in three or four days afterwards the patient was restored to health.—*Lond. Med. and Phys. Journ.*

34. *Intus-susception.*—Mr. J. Morley recommends in decided terms the resort to mechanical remedies in cases of constipation, where pain in the umbilical region and other threatening symptoms remain or return, after evacuating the lower bowels by enemata. Mr. M. proposes to use crude mercury, which has grown out of fashion from not having been employed sufficiently early in the disease. Mercury, he says, will "soon pass through the whole intestinal canal, unless there be a serious obstruction; if it meets this obstruction there is a probability that it will be overcome by its specific gravity; not less than a pound should be given." Mr. M. next recommends very large enemata; three or four quarts of gruel should be thrown up. Mr. M. does not favour us with any details of his own experience, or that of others.—*Lond. M. and P. Journal, Oct.* 1825.

35. *Contagion of Croup.*—Dr. George Gregory gives an account of three cases of croup, which all proved fatal. He infers, that the disease was a contagious one. The following are the facts. The first patient was seized with a sore throat and scarlet eruption Nov. 30th. He had cough and difficult breathing on the 4th of Dec. Croup came on decidedly that same night, and he died twenty-four hours afterwards, i. e. the 5th Dec. On the 10th Dec. his brother was attacked with disease, and became decidedly affected with croup Dec. 17th, on which day he died. On the 19th a sister was attacked with cynanche tonsillaris. On the 20th the breathing became sonorous, and she died on the 25th. Dr. G. says, "it may remain a question how far contagion had any share in the production of the disease in the two latter cases," but he is resolved hereafter to separate the affected child (in croup) from the healthy members of the family. We doubt if it be possible to find a physician in the United States to admit the contagiousness of croup as unconnected with some other peculiar morbid affection.—*Lond. Med. and Phys. Journal, Oct.* 1825.

Dr. Gregory's idea of contagion as above expressed, is remarked on by W. Pretty, Esq. in a paper on croup, in the same Journal for January. "I have witnessed many severe and fatal cases of croup, after, or rather in conjunction with simple scarlet fever, and malignant sore-throat; and here

I have no hesitation in subscribing to the belief of its being contagious, but not as the primary disease. It usually came on after several days continuance of one or other of the diseases just mentioned, and seemed to owe its production to the extension of inflammation from the fauces to the larynx and trachea in young children, and they were, to the best of my recollection, exclusively the subjects of its violence:—it proved generally fatal."—*Lond. Med. and Phys. Jour. Jan.* 1826.

In the same Journal, James Sym, Esq. relates some "cases intended to illustrate the contagious nature of some forms of croup." This gentleman says, that in the "spring of 1824, ulcerated sore-throat, accompanied in some instances with scarlatina, became prevalent in the neighbourhood of Kilmarnock." A number of cases became complicated with croup, and of such cases I only met with one which terminated favourably. The disease seemed to be contagious among children; and he saw a fatal case in an old man, who appeared also to have taken it by contagion. "From what I observed," says Mr. S. "I concluded that the ulcerated sore-throat, which appeared to be closely allied to scarlatina, constituted the contagious part of the disease, and that the croup was occasioned by the extension of the inflammation at the margin of the ulcers, into the rima glottidis."—*Lond. Med. and Phys. Jour. Jan.* 1826.

36. *On the effects of Subcarbonate of Iron in Neuralgia; Amaurosis; Paralysis Agitans; and Chorea.*—In the number of the Edinburgh Medical and Surgical Journal for January, 1826, Dr. William Belcher has published a very interesting case of Neuralgia, complicated with amaurosis. The case presented the following symptoms. The patient complained of total loss of vision of the left eye, "his right possessing that function unimpaired; at the same time he was suffering exceedingly from acute pain of the temple, eye-ball, ear, cheek, side of the head, and upper part of the neck of the same side; this pain shooting in *radii* along the *pes anserina*, and affecting the temporal, facial, and cervical branches of the *portio dura* of the auditory nerve; the integuments of the face and scalp at that side tender; and the paroxysm aggravated and brought on by the slightest pressure, attempt at mastication, noise, or even by a current of air. He has had a remission every morning and noon, and a severe exacerbation towards evening. On further investigation, I ascertained the existence of well marked amaurosis, the dilated pupil immoveable and inobedient to the stimulus of light; the bottom of the eye of a jet black colour, and a glassy appearance; the superior palpebra was paralyzed and fallen down over the upper half of the eye-ball; he had been a fortnight deprived of vision, and twelve days before that, had suffered from the neuralgic affections before alluded to. Accompanying these phenomena, he had frontal cephalalgia, *gastrodynia matutina*, bitter taste in the mouth, furred tongue, hepatic fulness, epigastric tenderness, digestive derangement, with constipation, his pulse unaffected and slow, aspect languid and pale, much mental despondency at the idea of being blind so early in life."

When Dr. B. saw the patient, the disease had continued a month. The treatment consisted, first in correcting the condition of the primæ viæ by means of blue pill with *extr. colocynth.* in the evening, and saline mixture in the morning; whilst the stimulating vapour of *liquor ammoniæ pur.* as recommended by Scarpa, was resorted to. These remedies were employed three days, and succeeded in relieving the symptoms of digestive derangement. The subcarbonate of iron was now prescribed in doses of half a drachm, three times a day. This remedy was persevered in, from July 19th to August 15th, and proved completely successful in restoring vision, and removing the pain. The patient took in all fifty-two half drachms of the subcarbonate of iron.

Dr. Granville of London has also published in the London Medical and Surgical Journal for January, 1826, the account of a case of severe headach, terminating in *tic douloureux*. Various remedies were used, and as soon as the disease had been "reduced to its simplest element," or in other words, had become neuralgia, the carbonate of iron was administered and continued three weeks, when the patient entirely recovered.

The British practitioners have lately administered this remedy in chorea and other nervous diseases, with the most decided success. In the 13th Volume, Part 1st. of the Medico-Chirurgical Transactions, Dr. Elliotson has published a valuable paper on the medical properties of this article, and detailed several interesting cases: one of paralysis agitans, and eight of chorea; all of which were cured in a short space of time.

The subject of the first case was a man aged 28 years, and who had been affected one year. He had "constant shaking of the legs and arms. The intensity of the tremor varies. Till within the last week, the agitation would sometimes cease for a few hours, or even a whole day, but for the last week has been constant. At first, sometimes one leg was affected, sometimes both. He has pain in the head, loins, and legs. and vertigo, and cannot fix his attention." After using, ineffectually, ointment of tartarized antimony to the legs—oil of turpentine in large doses—sulphate of zinc—purgatives, &c. Dr. E. commenced the use of the subcarbonate of iron on the 3d of June, resorting occasionally, at the same time, to leeches to the temples, and applying a perpetual blister to the forehead. The cure was complete on the 17th of July. In a case of three years standing, occurring in an old woman, the remedy was unsuccessfully administered. We annex the following case of chorea. April 8th, 1824, "Elizabeth Powell, aged twenty-two years, ill with chorea six months, had the disease six years ago. The right side most affected, *pain of the forehead, especially on stooping*. Has been bled and purged without benefit. ℥ii. of the subcarbonate of iron every eight hours were ordered. On the 13th she was rather better, and on the 17th much better. Her speech was greatly improved, and she could hold any thing in her right hand. *The pain of the head was quite gone.* She afterwards complained of pain in her left side, which was removed by two bleedings. She was dismissed on the 18th, per-

fectly well." The other cases were treated with equal success, and for the most part, almost as speedily relieved.

In respect to the quantity, of the subcarbonate of iron, which may be administered, Dr. ELLIOTSON remarks, "I have ascertained, by very numerous trials, that when the use of the medicine is proper, it may be given in far larger quantities [than is usually done by Dr. HUTCHINSON and others:] that two, three, and four drachms may by given every six, nay every four hours; that this dose of half an ounce may be at once commenced with, and does not require in order that it may be borne, to be reached by slow degrees, and that it may be continued many weeks without the slightest inconvenience." He further remarks. "When the medicine is proper, I believe there is generally no limit to the quantity which may be taken, except the unwillingness of the patient to swallow it, and the inability of the stomach to manage so heavy a mass. Neither headach, thirst, heat, foulness of tongue, griping, nor constipation has occurred, nor been increased if already present. Nay, pain and heat of the head, and giddiness existed already in some cases, and ceased during its employment."

This remedy has often been employed in similar complaints, in this city, and so far as we can ascertain, with very limited success. It is difficult to explain results so diametrically opposed, unless we admit that our remedy is not as powerful as that employed in England, or that our physicians prescribe it in too small quantities; but although these reasons may sometimes be found correct, we are convinced they cannot be regarded so in all instances.

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## SURGERY.

37. *Amputation at the Knee Joint.*—Professor SMITH of Yale College, recommends this operation in those cases, in which the superior part of the articulation is sound, and any circumstances prevent amputation below the knee. He makes two semicircular flaps, anteriorly and posteriorly: the first extending downwards to the lower part of the tubercle of the tibia, and formed of the patella and its ligament, with the integuments, synovial membrane, &c.; the second, of the same extent, and formed of the soft parts posteriorly. The anterior flap is to be first raised; the lateral ligaments are then to be divided, and finally, by a few strokes of the knife, the crucial ligaments and the posterior soft parts. When the flaps are approximated, "*the synovial membrane immediately assumes the adhesive inflammation, and union is speedily effected.*" "The stump will be more useful, as the lower part is formed by the patella, which becomes anchylosed to the femur." In April 1824, Dr. S. operated in this way on a Miss R. D. of Brunswick, Maine: "the patient recovered without the occurrence of any thing unpleasant."—*Amer. Med. Review, Dec.* 1825.

38. *Ligature on the Carotid artery.*—A case is stated by Dr. Boileau, of a man, thirty-six years of age, who was subject, from infancy, to pains in the head. At the age of twenty years, he had an eruption (dartre) on the chin, which remained for eight years; its disappearance was followed by increase of the cephalalgia, and by epileptic convulsions, partially caused, or increased, by intemperate habits. On the 19th of July 1822, he received an injury of his head from a fall, which was followed by more frequent epileptic paroxysms, and by mania. On the 22nd, he attempted to destroy his life by plunging a knife into the upper part of the neck, thus wounding the *superior thyroid artery*. The hæmorrhage was excessive, ceasing only with complete syncope. Dr. Boileau found him in this state; no pulse or action of the heart evident,—respiration very indistinct. He secured immediately, the common carotid on the right side. In a quarter of an hour afterwards, respiration was more evident, and gradually reaction succeeded; his mind, however, remaining calm. No unpleasant symptom occurred, and "during the space of three months, that I attended this patient, I noticed a gradual diminution of the symptoms of cerebral irritation, and towards the end of the treatment, *there existed no indication* by which its existence could be recognized. I thought the cure might be radical, if the patient would avoid all sources of cerebral excitement, direct or sympathetic."

This result he attributes to three causes. 1st. The profuse hæmorrhage following the wound. 2nd. The resistance afforded to the passage of blood to the head, by the obstruction of one carotid artery; and 3d. The continuance of a severe abstemious regimen.—*Journal Univ. des Scien. medicales, Aout.* 1825.

39. *Concussio Cerebri.*—Mr. H. R. Oswald, of the Isle of Man, relates an interesting case of an individual aged forty, who, on Friday Aug. 5th, fell backward from a poney, on the right and posterior part of the head. He was taken up insensible, and soon afterwards was bled, with no apparent effect. Mr. O, saw him on Saturday, Aug. 6th. found him insensible, incapable of deglutition, and sometimes manifesting an aversion to the attempt: he could not speak, and did not hear a loud voice; yet the pupils contracted on exposure to a lighted candle, which appeared to give him pain. Aug. 7th, morning; still incapable of swallowing; liquids introduced into his mouth, run out without irritating the fauces. In the evening, symptoms worse, and recovery despaired of. Mr O. now injected by means of a flexible tube, &c., a "pabulous" fluid into his stomach, to obviate some of the bad effects proceeding from the loss of the power of deglutition,—as the want of nourishment, and the torpor of the superior portions of the alimentary canal from the absence of all stimuli of a diluting, pabulous, or medicated kind. A pint of fluid, consisting of equal parts of skim-milk and common tea, was thrown into the stomach, after much resistance on the part of the patient, who was roused from his stupor by the operation. He, however, immediately relapsed into his former state. On the next day, Aug. 8th, the patient had *regained*, in some degree the powers of speech,

of hearing, and of swallowing. Symptoms of re-action *now* appeared, such as pain in the head, with an increase of temperature, pulse harder, &c. V. S. leeches, blisters, &c. were directed. This plan was continued to advantage, so that by the 11th of August, the patient was quite convalescent.

Mr. Oswald observes, in conclusion, that he considers it a case of unequivocal concussion of the brain, from a severe blow, from which the patient did not recover immediately, as in slight concussions, but remained sixty-five hours insensible; "and would probably have never recovered had not injection into the stomach been practised, so as to rouse re-action in that organ, and consequently in the whole system."—*London Med. and Phys. Jour. for Novem.* 1825.

40. *Chemosis.*—M. Desgranges, of Lyons, has detailed in the Jour. Generale de Med. Aout. 1825, a case of ophthalmia, in which the conjunctiva was raised and protruded, as in common cases of chemosis, by a *serous effusion* under this tissue, giving it a greyish colour. He terms it a "serous chemosis," and would distinguish it from *œdema* of the conjunctiva, phlyctenæ, isolated vesicles, &c.

The word *chemosis* has been very inaccurately employed by most writers on ophthalmia; many indicating thereby, a mere protrusion of the conjunctiva, from whatever cause; hence an *ecchymosis* of this membrane is often termed a chemosis. But the term should be restricted to that swelling which is the result of an inflammatory condition of the tissue; and hence we cannot award the meed of novelty, to the above observation of M. Desgranges. For it is certainly not new to us, that chemosis is caused by the effusion of a *serous* fluid, as well as of a lymphatic, a bloody, or even of a muco-purulent liquid. All these are the consequences of the inflammatory irritation, according to its violence, the cause which produced it, &c. Hence we observe also a "fungous chemosis," or a permanent thickening of the conjunctiva from the effusion of lymph: only to be remedied by excision: the cornea, in all these cases, being generally sound.

41. *Fracture of the Os Femoris with a Wound of the Popliteal Artery.*—Dr. Samuel C. Gwinner relates the case of a man, æt. 35 years, who received a severe blow on the left thigh from the falling of a hogshead; causing a fracture of the bone at its lower part. In an hour's time, the thigh was found enormously swelled and tense; the pain was excessive, which was referred to the foot and ancle; the foot and lower part of the leg were unusually cold and void of all sensibility to the touch. On the 8th day, coldness and want of sensibility remained, the pain and swelling were diminished; but the extremities of the toes were of a purplish colour, and vesications were forming on the outside of the limb, indicating gangrene. On the 14th, the skin covering the toes was shrivelled and dry; the gangrene extending, the health good. On the 17th day, the gangrene had reached the knee; the pain and swelling had greatly abated; and the constitution was suffering from irritative fever, and considerable debility was

present; amputation was performed. On the 21st all the symptoms promised a recovery.

*Dissection of the limb.* The Popliteal artery was wounded by the extremity of one of the fragments, immediately after it perforates the triceps adductor. "The orifice was small, and had communicated with a cavity about the size of a goose-egg, but now closed by a coagulum of blood which had formed in the artery more than an inch in length, opposite the wound, by this means intercepting completely the circulation through the sac and limb below, accounting most satisfactorily for the cause of the gangrene." The slowness of the mortification induces the belief, that there was a partial circulation through the leg. The blood in the sac and in the venæ comites of the femoral artery was almost as black as ink; and *completely dissolved.* The artery was thickened and *contracted*, the veins greatly enlarged and distended.—*Amer. Med. Review, Dec.* 1825.

42. *Gastrotomy.*—Dr. Barletta was called upon to extirpate a tumour from the abdomen, about the size of a hen's egg, and situated on the linea alba, below the umbilicus. While performing the operation, he found it was necessary to *open the cavity of the abdomen*, as the tumour proved to be formed by the peritoneum. This he did not hesitate to do; the patient's life was in danger from the subsequent symptoms, but she finally recovered. A hernial disposition at the cicatrix rendered a truss necessary.—*Jour. Univ. des Sc. Med. Sept.* 1825.

43. *On the occasional Obliteration of the Intestinal Canal.*—Dr. Bishopp, has published in the Nov. No. of the London Med. Repository, several cases and observations to prove that the mucous membrane of the intestines occasionally *coheres* so as to obliterate the canal. He adduces a case of strangulated Intestinal Hernia which occurred to himself in 1817. The patient died on the 5th day after strangulation, and twenty hours after the operation had been performed. There was no appearance of gangrene; marks of inflammation existed over the whole cavity of the abdomen, but especially in that portion of the ileum which had been strangulated. This portion was carefully examined; "it measured an inch and a half, and was so completely impervious throughout its whole extent, as not to admit either the smallest probe or a drop of water, in consequence of a *very firm cohesion of the villous coat*, most clearly produced by the adhesive inflammation giving the whole a very notable degree of *firmness and thickening;* so that nothing like mobility between the coats could be perceived when the sides of the gut were rubbed together between the thumb and finger." His second case is quoted from the 4th Vol. of the Mémoires de l'Academie de Chirurgie, and was communicated by M. Ritsh. This was also a case, in which an operation afforded no relief to a strangulated intestine, the patient died in 12 hours, and on examination "the intestine ileum was found excessively contracted at the two points, in which it had been strangulated at the ring, as if it had been firmly tied with a pack-thread. There was a mutual cohesion of the internal parieties of the intestine, in such a

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manner, that the cavity above this bridle had no communication with the remainder of the canal; the passage was completely obstructed."

A similar instance is also adduced from GRAEFE and WALTHER's Journal, in which an inch and a half of the small intestines "was constricted and nearly altogether obliterated." Dr. BISHOPP quotes the authority of Mr. GEOGHEGAN,* that the operation for hernia frequently fails in consequence of an agglutination of the villous coat of the gut; also an instance of strangulation, from Professor MONRO, in which, a coagulum of fibrine completely obstructed the canal. From these facts, he would recommend that in operating for strangulated hernia, if the intestine be found thickened it should not be returned, until the bowels became pervious; should this not happen, but the symptoms of strangulation continue, the bowel should be laid open, and treated as when found gangrenous.

To these practical inferences we perceive no objection—but the cases brought forward are by no means sufficient to substantiate the hint thrown out, that mucous membranes *often cohere* by the inflammatory process;—or that it is an event which will occur in many instances. We have not room for a discussion on this important point, but we would recall to our readers the manner in which strictures of the urethra, of the rectum, of the œsophagus, &c. are formed;—not by the effusion and subsequent organization of lymph from the secreting surface, but by the deposition of fibrine externally, in the *substance* of the mucous tissue, in the cellular membrane, and other parts forming the parieties of the canal, by which the whole is indurated and thickened. This occurred in Dr. BISHOPP's case, as well as in all those which he has quoted. Let it be also remembered, that even when the inflammatory irritation of the mucous surface is very great, and large quantities of lymph are secreted on its exposed surface—the instances are exceedingly rare where this lymph has been found organized. The membranes formed in the inflammatory affections of the trachea, bronchiæ, intestines, &c. have, perhaps, never been found permeated by blood-vessels, nerves, &c.† These facts, to our mind, are sufficient to establish the general principle, that mucous membranes, so long as their integrity is preserved, do not unite by the adhesive inflammation. To it there perhaps may be some exceptions; the adhesion *may* have occurred in some of the cases which Dr. B. after much research, has been able to collect. COPELAND and CALVERT affirm also, that strictures of the rectum are sometimes caused by this direct adhesion; but proof is yet wanting, that in these and similar instances ulceration did not precede the secretion of the lymph.

44. *Fistulous Opening between the Vagina and Urethra, successfully treated.*—Mr. HOBART, of Cork, Ireland, in the London Medical Journal for December, reports, that on the 17th of July, 1825, he was consulted by a healthy female, æt. 26 years, who, about ten months previously, had been deliver-

* Ed. Med. and Surg. Journ. 1824.

† Vide also the Exper. and Observ. of Smith, Travers, Thomson and others, on wounds of the intestines.

ed, after a tedious labour of five days, by means of the *perforator* and *crotchet*. From this period she had been continually subjected to an incontinence of urine, the whole of this secretion passing constantly from the vagina, causing much distress, besides excoriation of the nates, thighs, &c. DESSAULT's plan of introducing a pessary into the vagina, and keeping a catheter in the urethra, had been ineffectually tried for two months. The application of the potential, and of the actual cautery to the edges of the opening, had no better result. Mr. H. obtained a satisfactory view of the fistulous opening, on dilating the vagina by means of Mr. WEISS' speculum. This opening was nearly oval, with its long diameter in the direction of the vagina; its edges smooth and callous; its size sufficiently large to admit the point of the finger; and its situation about two and a half inches from the os externum.

To effect a cure, the argentum nitratum was freely applied to the callous edges, so as to reduce them to a granulating state—after which the parts were retained in contact by means of two ligatures. A catheter was passed into the bladder, through the urethra, and properly secured in its place. At the end of fourteen days the ligatures were withdrawn, and three days afterwards, the catheter, when the opening into the vagina was found closed,—the whole of the urine flowing now from the urethra. For a short time the patient suffered from incontinence of urine, but by the end of August, she was entirely relieved from all inconvenience.

45. *Calculus in the Urethra.*—In the Archives Générales for September, M. BOULER details the following case:—A boy, five years of age, had suffered for two years slight attacks of hœmaturia, recurring frequently, but without pain, or any particular uneasiness, even while urinating. In the night of the 7th of May, 1825, he was suddenly attacked with a retention of urine. On the morning of the next day, Dr. B. found him in extreme suffering, making forcible, but useless efforts to urinate; the belly swollen, face flushed, and a good deal of fever. So much pain was caused by attempting to introduce the catheter, that, at the request of his parents, it was given up, and the warm bath, fomentations, and enemata were directed. At 8 P. M. the boy was insensible, and affected with frequent convulsions, while the abdomen was enormously swelled. The introduction of the catheter, which could now be attempted, was prevented by a foreign body in the urethra, immediately anterior to the scrotum. To remove this extraneous substance, which proved to be a calculus, an incision, five lines in length, was made through the skin, and parallel to the urethra—the skin being drawn forwards to prevent this first incision remaining parallel with the second, by which the urethra was opened. A calculus was easily extracted, and a quantity of urine, at first of a red colour, immediately escaped. The child recovered from its insensibility during the operation. The wound was simply dressed; no catheter was introduced. A little urine continued to pass through the opening until the third day, when it was found entirely closed, and all danger had disappeared.

46. *High operation for the Stone* successfully performed at Sheerness, by A. Copland Hutchison, Esq.—"The patient being placed on a mattress upon a table of ordinary height, with a pillow under his head; the pelvis raised considerably higher than his shoulders, with the view of removing the peritoneum as far from the parts to be cut as possible; while his feet rested upon chairs; standing on the right side of the patient, I made an incision, nearly four inches in length, with a scalpel, in the line of the linea alba through the integuments downwards over the front of the pubes; which latter step I found of great advantage, both during the operation and in the subsequent treatment of the case. The incision was carried on down towards the bladder, between the pyramidales muscles, and through the linea alba; the latter being first punctured, and after cut *transversely upon the symphysis pubis*, dividing some of the fibres of the pyramidal muscles on each side as we proceeded, so as to give a more free passage for the extraction of the stone. I then, with a director, detached this tense membrane (the linea alba) from its subjacent adhesions, and divided it upwards with a probe-pointed bistoury, introduced into the groove of the director, until I could readily insert the fore-finger of my left hand, which is, on all occasions, the best director; and which was most conveniently done by standing between the legs of the patient. When about two inches and a half of the linea alba were thus divided, I thought we should have had sufficient space for cutting into the bladder, and extracting the stone; but, as the wound appeared deep and narrow, and there was a large calculus to extract, I cautiously extended the incision half an inch more, in the manner already described.

The bladder, very much contracted, was now clearly seen covered by fat, and was raised through the fat, upwards and forwards, to the external wound of the integuments, upon the point of a silver staff, with a groove in its concave part, extending from close to its point downwards about two inches, and which I preferred to the *sond* used by the French surgeons, that instrument appearing to me both unnecessary and unscientific. The handle of the silver staff being held in a depressed position by my friend Mr. Brown, the anterior part of the fundus of the bladder was pierced from without, by a straight sharp-pointed bistoury, passing its point into the groove of the staff, and carrying the incision downwards and forwards to the pubes, until there was room for the fore-finger, which was introduced for the purpose of ascertaining the size of the calculus, that the opening in the bladder might be enlarged accordingly. Having satisfied myself on this head, I hooked up the fundus of the bladder with my finger, and enlarged the incision towards its cervix, sufficiently to admit of the free extraction of the stone. Some little difficulty here arose in disengaging the stone from its situation, notwithstanding the great assistance obtained by the *introduction of the fore-finger of my right hand into the rectum*, while the fore-finger of my left was in the bladder, to cant or turn the stone, so as to extract it by its smaller axis: and, indeed, this was not effected

until the single blade of a pair of small stone-forceps was introduced. The stone being thus turned, it was easily removed with the finger and thumb. In point of fact, so firmly did the bladder grasp the calculus, that the idea was conveyed to our mind of its actual adhesion to the coats of that viscus.

One small cuticular artery was divided at the first incision, and secured at the time, to prevent the future steps of the operation being obscured by the bleeding, and the subsequent issue of blood into the cavity of the pelvis.

Two slips of linen, dipped in oil, were introduced through the external wound on each side of, but not into, the bladder. A gum-elastic catheter was passed into the bladder, so as just to enter its cavity, and no further, and was secured in this situation by tapes attached to the instrument, and to an elastic band, or retainer; which in this case was made of flannel, lined with calico. The sides of the wound were brought together by slips of sticking-plaster, and the parts supported by a flannel roller, passed three or four times round the pelvis and the lower part of the abdomen. The patient, by means of pillows, was placed on an inclined plane; a vessel was secured to the end of the catheter to receive the urine; and he had an anodyne draught administered to him." The patient did well, recovering very speedily. Letter to Sir E. Home, Bart.—*Journal of Science, Oct.* 1825.

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## MIDWIFERY.

47. *On the effects and use of Ergot.*—Although the ergot has long been a subject of investigation among the accoucheurs of this country and Europe, we do not discover that any satisfactory conclusion has been arrived at, respecting its real virtues in accelerating the action of the uterus; or the danger to the mother or child, attending its exhibition. Our readers, who have examined some of the later numbers of the New York Medical Repository, must have noticed the sentiments of a very reputable accoucheur and physician of Baltimore, Dr. Chatard, respecting the danger attending its use during labour;—sentiments stoutly opposed by Dr. Ives of New York, and contradicted by the result of the experience of many of our most intelligent practitioners. Indeed almost every writer on the subject entertains a different opinion. M. Desgrange found it very useful and manifesting a decided action on the uterus. Mr. Cliet, of Lyons, and Mrs. Lachapelle, found it a useless article. More recently Dr. George Holcombe, of New Jersey, in a letter addressed to Dr. Dewees, and published in the February number of the Philadelphia Medical and Physical Journal, remarks: "The scruple dose, as a general prescription for aiding the expulsive stage of labour, I am convinced, from considerable experience, is exceptionable and dangerous." He is decidedly of opinion that more children have died from the injudicious use of the ergot, since its in-

troduction in practice, than have been sacrificed by the unwarrantable use of the crotchet for a century past. "For some time I used the scruple doses, but soon abandoned this practice in consequence of several fatal demonstrations of its impropriety. Since then I have administered it in very small doses—say from two to three grains, which I repeat as often as may be necessary; and in this manner, I am *generally* able to effect my object; and *always* without injury to the mother or child. In fact, I have never known a child's perishing from ergot administered in this cautious manner. I prescribe it now, unhesitatingly, in first labours, and even in cases of contracted pelvis; and such is the extraordinary energy imparted to the uterus, by the slow but persevering mode of exhibition, which I have adopted, that I have very rarely found it necessary, for several years past, to resort to the use of the forceps."

48. *A new variety of Extra Uterine Pregnancy*, is described by Gilbert Breschet, M. D. of Paris, in the 13th volume of the London Medico-Chirurgical Transactions. This variety, is termed by Dr. B. "*Graviditas in Uteri Substantia:*" The fœtus being enclosed in the parenchyma of the uterus itself—and surrounded by a cyst, separating it from the substance of this organ, as is observed, whenever foreign bodies are introduced into organic tissues. No communication existed between the cavities of the abdomen or uterus, and that containing the fœtus.

One case, which is given in detail, and the first that has been published in France or England, occurred to Dr. B. himself. A second one was seen by Dr. Albers of Bremen. Besides these, says our reporter, there are only two cases on record. The first may be found in vol. 1st. of the Memoirs of the Josephine Academy of Vienna—and is related by Professor G. Schmith; and the second has been described by Mr. Hedrick; and Professor Carus of Dresden has given a drawing of the preparation.

In all these cases, a rupture took place, sooner or later, the fœtus was thrown into the abdomen, and death speedily ensued. In each case, the membrana decidua was distinctly formed in the uterus, even where the tubes were obliterated, manifesting, that it does not belong to the embryo, properly so called. Dr. B. offers several explanations of this variety of extra-uterine pregnancy, for which we must refer our readers to the work itself.—*Archiv. de Horn. Sept. & Oct.*—1817.

49. *A case of double Uterus.*—This was observed in the body of a female, aged thirty years, who died from peritoneal inflammation, soon after the birth of her fifth child. Her first accouchment was laborious, rendering instruments necessary; the succeeding three were natural. In December, 1824, she was again in labour, but the pains produced no effects on the os uteri; the uterus itself appeared to have a right obliquity, occupying chiefly the right side of the abdomen. The fœtus was eventually delivered by the forceps, through a rupture, which spontaneously occurred near the pubis. She died on the third day after delivery.

The uterus was found to consist of two lobes; a left and right, the latter

being more anterior, having separate cavities and communicating laterally with a common neck. The right lobe had evidently contained the last fœtus, having a transverse rupture, about three and a half inches in length, communicating with the vagina. It was very obliquely situated. The left lobe was much less oblique, and in the present condition smaller. The vagina was single. To each lobe was attached one broad ligament, with an ovary, fallopian tube, &c.

From appearances, and from the situation of the two lobes, it seemed probable, that the first children had been contained in the left lobe, whose situation, being less oblique, allowed of a natural delivery; but that the last infant was formed in the right lobe, whose obliquity prevented its passage, except by a preternatural orifice. The bladder also was unexpectedly found to be ruptured.—*Communicated to the Society of Med. at Angers, by Drs.* JOUVET *and* GARNIER.—*Archives Generales.*

50. *Uterine Hæmorrhage.*—Mr. WALLER, of Aldersgate street,* has performed the operation of transfusion, in a case of extreme exhaustion from uterine hæmorrhage. Four ounces of blood were transfused. The syringe held half this quantity, and two injections were made. The blood was drawn directly from a vein of the husband, and immediately introduced into one of those of the patient. The operation is stated to have been followed by entire restoration from a state of extreme exhaustion. The precaution was used, and is recommended, to introduce a blunt needle, a little below the orifice, in order to prevent the loss of blood. We cannot conceive that four ounces could save the life of a person, dying from the loss of several quarts.

Mr. E. DOUBLEDAY was also called to a female, so exhausted by bleeding from the uterus, before the placenta was extracted, that the pulse could not be felt; the countenance was exsanguineous; sight indistinct; breathing hurried, and accompanied with sighing; and the body covered with a cold clammy perspiration. No real advantage being procured by the free exhibition of brandy, ammonia, and laudanum, the operation of *transfusion* was undertaken by Dr. BLUNDELL. The median vein in the right arm was exposed, but the patient made so much resistance, that it could not be persevered in. At half past two o'clock P. M., about ten hours after the delivery of the child, and six hours after the hæmorrhage had stopped, and after twenty ounces of brandy, one hundred and sixty drops of laudanum, and a considerable quantity of ammonia had been given; Mr. D. received an urgent message from the attending physician, Mr. FRANKS, that the patient was "*sinking very fast.*" The operation was immediately performed with all the requisite precautions. Two ounces of fresh blood were injected in a direction towards the heart: the *pulse rose* as the syringe was emptied. On the injection of the second quantity, the pulse *became broader*, and the appearance of the lips and countenance was much improved: when the third syringeful was thrown in, she was so much recovered as to ex-

* Vide Lond. Med. Journal, October, 1825.

claim, "I am as strong as a bull!" The operation was continued with evident advantage until fourteen ounces of blood had been injected, and the patient complained of a slight pain over the left eye. "The pulse sometime previous to the operation, when it could be numbered, was 140, but was now reduced to 104. A quarter of an hour after the operation, it was 98; in half an hour, 90. The pulse for the most part was strong, soft, and full, but somewhat irregular, and continued so for upwards of two hours. At about the expiration of an hour, she sat up and assisted the nurse in undressing and in making herself more comfortable, as if nothing had occurred beyond what is observed in ordinary cases."

Three hours after the operation, some fever was present, rendering a purgative enema necessary, and by the evening of the succeeding day, her breasts were distended by a free secretion of milk. She rapidly recovered. *Lond. Med. and Phys. Jour. for Nov.* 1825.

The London Med. Repository for January last, states, that Doctors URWINS and BLUNDELL, and Mr. WRIGHT, surgeon, have operated in a third case, in which also a puerperal female was exhausted from flooding. The details are not given, but the editors add, that they "are not of a nature "to satisfy us, that the operation was either so necessary, or so beneficial, "as those engaged in the performance of it, seem to have thought."

51. *Extract from a note addressed to Professor* JAMES, *of the University of Pennsylvania, dated November 15th,* 1825.

"Sometime in the year 1815, a negro woman, belonging to Mr. ALLEN, of Barnwell, South Carolina, was delivered by a natural unassisted labour of three children: two of them were *white* males, the other a perfectly *black* female. These three children were born in such quick succession, that the only attendant present, (a female,) became frightened and fled, leaving the children on the floor of the apartment. No untoward symptom succeeded, and the mother was perfectly restored in a few weeks.

The two boys are now alive, and full grown for their age. In consequence, however, of the mother's neglect, who appeared particularly attached to the sons, the girl did not survive longer than eighteen months.

Having, in company with other gentlemen, visited the mother and children, expressly to ascertain the truth of these facts, I have no hesitation in stating the above mentioned circumstances as correct: and as the case appears to be interesting in several points of view, both physiological and obstetrical, I have taken the liberty of intruding it upon your notice; hoping my intention will excuse any breach of ceremony which I may have made in offering it. Yours, &c.

LAURENCE J. TROTTI."

52. *A Tumour in the anterior Mediastinum, containing Bone and Teeth,* is described by Dr. James Alexander Gordon, in volume 13th of the Medico-Chirurgical Transactions of London.—M. C. ætat. 21, a stout young woman,

was admitted with symptoms of pneumonia, into the Islington Dispensary, on the 17th of June, 1822. On the 19th of August, a pulsating tumour manifested itself below the sternal extremity of the left clavicle, which rapidly increased. It afterwards remained stationary until the spring of 1823, when it gradually extended over the trachea to the right side, threatening suffocation. In the middle of June, it began to point, and on the 25th it burst, discharging only a *serous* fluid. The tumour now gradually disappeared, and by the 12th of September, no trace of it was discoverable and the patient was able to return to her work.

On the 17th of October she was re-admitted, with symptoms of dyspnœa and general fever, and on the 20th she died.

On dissection, a tumour was found in the anterior mediastinum, closely connected by thickened cellular membrane with the arteria innominata. The parieties of the tumour, (which adhered to the sternum) had anteriorly "the close compactness of tendinous expansion," while its posterior and lateral portions were more loose and flaccid. The contents were, serous fluid, sebaceous matter, mixed with hair, and at the bottom, a bony substance. "On a more careful examination, bone was detected, very nearly "resembling the upper maxillary, a portion of alveolar process, which "might seem to belong to the upper or lower maxillary, and seven teeth, "two cuspidati, two incisores, and three molares."

Accounts of cases, similar to this, may be seen in the Philosophical Transactions, and in a publication of Mr. Highmore in 1815. "I should consider the tumour as having co-existence with the subject from which it was taken, and was carried without inconvenience, till inflammation in its neighbourhood, excited that fluid secretion, on which its enlargement depended."

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## CHEMISTRY AND PHARMACY.

53. *Alleged Variation in the Composition of the Atmosphere.*—Mr. Dalton states that he has found the oxygen in the atmosphere to vary from 20.7 per cent. to 21.15 per cent. In its general state, Mr. Dalton found from 20.7 to 20.8 per cent.—*Ann. Phil. N. S.* x. 304.

No conclusion can be drawn from differences so slight as here related, unless the experiments have been made with scrupulous attention to accuracy. Until this is done, the strong probability remains that the composition of atmospheric air corresponds with two atoms of azote and one atom of oxygen, which gives 20 per cent. as the proportional amount of the oxygen by volume. We are the more inclined to this opinion, as the progress of experimental inquiry is constantly reducing the quantity of oxygen. By numerous experiments, made with the very accurate eudiometers invented by Dr. Hare, the proportion of oxygen by volume very little exceeds 20 per cent.

54. *Discovery of Lithia in the Mineral Waters of Bohemia.*—Berzelius, in a letter to Dulong, states that he has discovered the rare alkali lithia, as a constant and essential constituent in these waters. He also considers it as very probable that sea water contains this alkali.

55. *Thorina not a distinct Earth.*—Berzelius has ascertained that the substance announced by him, about ten years ago, as a new earth, under the name of thorina, is really a subphosphate of yttria.—*Journ. of the Royal Inst. Jan.* 1826.

We are glad to receive this information, as it clears up a difficulty, under which we have laboured for some time past, that thorina, though a discovery of Berzelius, should not be mentioned by this chemist in his Essai sur la Théorie des Proportions Chimiques, published in 1819.

56. *Simultaneous action of oxygen and alkalies on organic substances.*—Mr. Chevreul has ascertained that several substances are acted upon by the combined power of oxygen and alkali; though not affected by either of these agents separately. Some of the substances in this predicament are *hematin, colouring principle* of Brazil wood, *cochineal, flax, gallic acid, ox gall, colouring matter of blood,* and *albumen.*

Considering these facts, Mr. Chevreul is led to make the following queries:

Have not the alkaline liquids of the animal system a different relation to oxygen from the acid liquids?

May not the alkaline matter contained in the blood have some influence in the function of respiration?

Is the alkalinity of the fluids, destined during life to receive the impression of the air, essential to the chemical changes which occur in respiration; or is it an independent condition, having no agency in those changes? Mém. du Muséum, xii. 367, as quoted in the Journal of the Royal Institution, Jan. 1826.

57. *Peculiar blue matter, obtained from certain urines.*—Mr. Braconnot has lately subjected to chemical examination a specimen of morbid urine, of a deep blue colour, voided by a girl who had vomited a matter of a similar colour. The colour depended on a blue matter held in suspension, which was readily separated by the filter. When examined, it was found to be pulverulent, of extreme tenuity, insipid, inodorous, and of a tint deeper than Prussian blue. Mr. Braconnot, considering the blue matter as a peculiar substance, and, from its aptitude to combine with acids, analogous to the organic salifiable bases, proposes to call it *Cyanurin.*

Upon heating the urine, from which the blue matter was separated, another principle in the form of a very black sediment, is deposited; for which Mr. Braconnot proposes the name of *melanurin.* Mr. B. thinks it probable, that it is the presence of this substance which gives rise to the black colour of certain urines.—*Ann. de Chimie,* xxix. 252, *July,* 1825.

58. *Method of detecting minute portions of Corrosive Sublimate.*—Mr. Nicole, apothecary at Dieppe, has lately put in practice Mr. James Smith-

son's method of detecting this poison. It depends upon the decomposing galvanic action excited by the contact of gold and tin. Mr. NICOLE proceeded thus: a piece of rolled tin-foil was wound round a gold ring. A portion of the poisoned substance (an omelet in the case reported by Mr. NICOLE) is then put into a watch glass, mixed with a little distilled water, and the ring, armed with the tin-foil, brought in contact with both. Upon the addition of a drop of muriatic acid, the little pile is brought into action, and determines the decomposition of the mercurial salt, the mercury being revived upon the gold, which it whitens.—*Jour. de Pharmacie, Sept.* 1825.

59. *Method of detecting adulterations of Balsam Copaiva by Castor Oil.*—Castor oil is frequently used to adulterate the balsam copaiva. The fraud may be detected, by subjecting the suspected sample to a prolonged ebullition in water, or by the addition of caustic soda. By the former test, if the article be impure, a soft substance of various degrees of consistence is obtained; if pure, the residuum is a hard and brittle resin, amounting to half the weight of the balsam. By the test of caustic soda, the pure balsam is converted into a whitish liquid, which, in half an hour, separates into two distinct layers, the lower one, somewhat thick, and the upper, entirely composed of the balsam. If the article be adulterated, the alkali converts it into a whitish saponaceous mass, which at the end of twenty-four hours becomes hard.—*Jour. de Pharmacie, Sept.* 1825.

60. *Necessity of Water in the preparation of Emplastrum Plumbi or Lead Plaster.*—It is usually stated by pharmaceutical writers, that the only use of water in the preparation of this plaster, is to prevent the temperature from rising too high. That this is an erroneous supposition, is proved by the fact, that litharge and oil cannot be made to unite, though stirred together for several hours, the heat being regulated at 220° by means of steam. If, however, a small quantity of boiling water be added to the heated mixture, the oil and oxide immediately saponify.

The author of these observations, supposing it probable that the oxide of lead might be in the state of hydrate, proved this to be the fact, by repeating the process with olive oil, and hydrated oxide of lead, precipitated from acetate of lead by caustic potassa, exposing the mixture to the temperature of 212°. In half an hour, without the addition of any water, the substances united into a perfect plaster.—*Jour. Roy. Inst. Jan.* 1826.

61. *Medicinal Principle of Garden Lettuce, or Lactucarium.*—Mr. FRANÇOIS purposes to obtain the narcotic principle of this plant by making incisions into its stem at the time of flowering. When thus obtained, he proposes for it the name of *thridace*. Mr. ROMAN, in commenting on Mr. FRANÇOIS' method, objects to it, on account of the small product, which it enables the operator to obtain.

Mr. ROMAN prepares the principle in the following manner:—He takes thirty pounds of lettuce, and deprives it of the leaves and summits. The stems, after being cut into small pieces, are bruised in a marble mortar, and afterwards macerated for six hours in about twelve and a half pints of water.

The whole is then strained. The strained liquor, after having been allowed to rest, is boiled for a few minutes, in order to separate a green fecula. It is then filtered and evaporated to a proper consistence. From the quantity of lettuce above mentioned, Mr. ROMAN obtained six ounces of a reddish-brown extract, of a resinous appearance, attractive of moisture, and possessing a taste similar to that of the extract of opium. Its properties are besides, the same as those of the thridace of Mr. FRANÇOIS, producing the same effects in the same doses.—*Revue Medicale, Aug.* 1825.

Mr. DUBLANC, Jun. has ascertained that this substance does not owe its narcotic power to the presence of morphia.—*Journ. de Phar. Oct.* 1825.

# MORTALITY

## IN SEVERAL OF THE PRINCIPAL CITIES OF THE UNITED STATES, FOR THE YEAR 1825.

The following bills of mortality have been taken from Poulson's American Daily Advertiser, (for which they were expressly arranged) with some alterations.

### STATEMENT OF DEATHS IN THE CITY OF BOSTON,

*For the year* 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

| Deaths in each month. | Males. | Females. | Total. |
|---|---|---|---|
| January, | 51 | 48 | 99 |
| February, | 53 | 66 | 119 |
| March, | 46 | 37 | 83 |
| April, | 60 | 51 | 111 |
| May, | 63 | 58 | 121 |
| June, | 53 | 48 | 101 |
| July, | 83 | 87 | 170 |
| August, | 74 | 78 | 152 |
| September, | 79 | 66 | 145 |
| October, | 73 | 50 | 123 |
| November, | 48 | 58 | 106 |
| December, | 60 | 60 | 120 |
| Totals, | 743 | 707 | 1450 |

| AGES. | |
|---|---|
| Under 1 Year, | 322 |
| From 1 to 2 | 170 |
| 2 to 5 | 104 |
| 5 to 10 | 46 |
| 10 to 20 | 54 |
| 20 to 30 | 136 |
| 30 to 40 | 155 |
| 40 to 50 | 117 |
| 50 to 60 | 81 |
| 60 to 70 | 51 |
| 70 to 80 | 55 |
| 80 to 90 | 26 |
| 90 to 100 | 8 |
| Unknown, | 125 |
| Total, | 1450 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Fever, Typhus | 54 | *Brought over,* | 474 |
| —— Synocha | 12 | Colica Biliosa | 4 |
| —— Intermittent | 1 | Diarrhœa | 4 |
| —— Yellow | 1 | Cholera Morbus | 11 |
| Asthma | 2 | Dyspepsia | 7 |
| Pleuritis | 6 | Obstipatio | 3 |
| Pneumonia | 67 | Intemperance | 23 |
| Phthisis Pulmonalis | 220 | Delirium Tremens | 7 |
| Influenza | 7 | Vesania | 10 |
| Phrenitis | 3 | Ascites and Anasarca | 28 |
| Diaphragmitis | 1 | Hydrocephalus | 38 |
| Enteritis | 15 | Hydrothorax | 3 |
| Cystitis | 1 | Rheumatismus | 6 |
| Hepatitis | 16 | Arthritis | 1 |
| Icterus | 9 | Erysipelas | 1 |
| Peritonitis Chronica | 3 | Scrofula | 4 |
| Dysenteria | 56 | Lepra | 1 |
| *Carried over,* | 474 | *Carried over,* | 625 |

| | | | |
|---|---|---|---|
| *Brought over,* | 625 | *Brought over,* | 951 |
| Variola | 1 | Rubeola | 77 |
| Heart, diseases of | 5 | Scarlatina | 1 |
| Carditis | 2 | Cynanche Maligna | 6 |
| Palpitatio | 1 | —— Trachealis | 24 |
| Old Age | 38 | —— Tonsillaris | 3 |
| Marasmus | 2 | Vermes | 3 |
| Sphacelus | 8 | Accidental | 11 |
| Abscessus | 2 | Drowned | 21 |
| Tumour | 1 | Murder | 1 |
| White swelling | 1 | Suicide | 4 |
| Carcinoma | 7 | Suffocation | 1 |
| Burns | 5 | Poison | 1 |
| Sciatica | 1 | Frozen | 1 |
| Calculus | 2 | Cold water, drinking of | 3 |
| Syphilis | 3 | Heat | 3 |
| Hernia | 2 | Sudden | 35 |
| Puerperal diseases | 17 | Bursting blood vessels | 2 |
| Still Born | 89 | Lethargus | 1 |
| Infantile diseases | 44 | Spasmi | 48 |
| Cholera Infantum | 13 | Apoplexia | 12 |
| Dentitio | 15 | Paralysis | 14 |
| Aphtha | 40 | Unknown | 227 |
| Pertussis | 27 | | |
| | | Total, | 1450 |
| *Carried over,* | 951 | | |

*By order of the Mayor and Aldermen,*
SAMUEL H. HEWES,
Superintendent of Burial Grounds.

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## STATEMENT OF DEATHS IN THE TOWN OF SALEM,

*For the year* 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

| Deaths in each month. | Males. | Females. | Total. |
|---|---|---|---|
| January, | 10 | 12 | 22 |
| February, | 8 | 20 | 28 |
| March, | 9 | 8 | 17 |
| April, | 7 | 5 | 12 |
| May, | 7 | 7 | 14 |
| June, | 11 | 6 | 17 |
| July, | 17 | 17 | 34 |
| August, | 19 | 19 | 38 |
| September, | 10 | 19 | 29 |
| October, | 13 | 11 | 24 |
| November, | 14 | 10 | 24 |
| December, | 13 | 8 | 21 |
| Totals, | 138 | 142 | 280 |

| AGES. | |
|---|---|
| Under 1 Year, | 34 |
| From 1 to 2 | 35 |
| 2 to 5 | 15 |
| 5 to 10 | 4 |
| 10 to 20 | 16 |
| 20 to 30 | 30 |
| 30 to 40 | 28 |
| 40 to 50 | 27 |
| 50 to 60 | 27 |
| 60 to 70 | 26 |
| 70 to 80 | 22 |
| 80 to 90 | 11 |
| 90 to 100 | 5 |
| Total, | 280 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Apoplexy | 4 | *Brought over* | 123 |
| Aphthæ Infantum | 3 | Hydrocephalus | 13 |
| Aphthæ | 3 | —— Acutus | 5 |
| Abortion | 2 | —— Internus | 2 |
| —— After Dysentery | 1 | Hydrothorax | 3 |
| Accident | 2 | Hydrops Uteri | 1 |
| Atrophy | 2 | Heat | 1 |
| Burns | 2 | Hæmorrhagia Atonica | 1 |
| Cancer | 1 | Intemperance | 6 |
| Canker | 1 | Jaundice | 1 |
| Cholic, Bilious | 1 | Marasmus | 9 |
| Congestion in the Brain | 1 | Medullary Sarcoma | 1 |
| Consumption | 41 | Measles | 2 |
| Convulsions | 4 | Old Age | 22 |
| Chronic Hepatitis | 1 | Paralysis | 4 |
| —— Diarrhœa | 2 | Peripneumonia | 5 |
| Croup | 5 | —— Notha | 11 |
| Cholera Infantum | 2 | Puerperal Insanity | 1 |
| —— Morbus | 1 | Pneumonia | 3 |
| —— Morbus and Enteritis | 1 | —— After Measles | 1 |
| Compression of the Brain | 1 | —— Typhoides | 1 |
| Drowned | 4 | Palsy | 2 |
| Dentition | 1 | Pertussis | 1 |
| Delirium Tremens | 3 | Phthisis Pulmonalis | 20 |
| Dropsy | 4 | Sudden Death | 8 |
| Dysentery | 11 | Suicide | 3 |
| Diarrhœa | 1 | St. Vitus' Dance | 1 |
| Dyspepsia | 1 | Secondary Syphilis | 1 |
| Disease of Rectum | 1 | Scalded | 2 |
| —— Liver | 1 | Still Born | 1 |
| Epilepsy | 1 | Scirrhous Pylorus | 1 |
| Enteritis | 3 | Tabes | 1 |
| Fever | 9 | Typhus Gravior | 1 |
| —— Typhus | 1 | Uncertain | 22 |
| Hydrorachitis | 1 | | |
| | —— | Total, | 280 |
| *Carried over,* | 123 | | |

*By order of the Board of Health,*

JOHN C. VERY, Secretary.

## STATEMENT OF DEATHS IN THE CITY AND COUNTY OF NEW-YORK,

*For the Year* 1825,

SPECIFYING THE SEXES, AGES AND DISEASES.

| Deaths in each month. | Adults. | Children. | Total. |
|---|---|---|---|
| January, | 196 | 121 | 317 |
| February, | 287 | 153 | 440 |
| March, | 228 | 134 | 362 |
| April, | 194 | 111 | 305 |
| May, | 262 | 143 | 405 |
| June, | 245 | 174 | 419 |
| July, | 435 | 298 | 733 |
| August, | 233 | 279 | 512 |
| September, | 188 | 219 | 407 |
| October, | 206 | 160 | 366 |
| November, | 219 | 157 | 376 |
| December, | 208 | 168 | 376 |
| Totals, | 2901 | 2117 | 5018 |

| Ages. | |
|---|---|
| Under 1 Year, | 1109 |
| From 1 to 2 | 386 |
| 2 to 5 | 300 |
| 5 to 10 | 137 |
| 10 to 20 | 181 |
| 20 to 30 | 653 |
| 30 to 40 | 758 |
| 40 to 50 | 641 |
| 50 to 60 | 357 |
| 60 to 70 | 226 |
| 70 to 80 | 161 |
| 80 to 90 | 88 |
| 90 to 100 | 14 |
| 100 to 110 | 7 |
| Total, | 5018 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Abscess | 12 | *Brought over,* | 2033 |
| Aneurism | 4 | Dysentery | 138 |
| Apoplexy | 147 | Dyspepsia | 5 |
| Asphyxia | 4 | Epilepsy | 6 |
| Asthma | 12 | Erysipelas | 16 |
| Burned or Scalded | 30 | Fever | 120 |
| Carbuncle | 3 | —— Bilious | 10 |
| Cancer | 13 | —— Bilious Remittent | 14 |
| Caries | 1 | —— Inflammatory | 3 |
| Casualties | 53 | —— Intermittent | 10 |
| Catarrh | 1 | —— Puerperal | 5 |
| Childbed | 30 | —— Putrid | 1 |
| Chicken Pox | 1 | —— Remittent | 45 |
| Cholera Morbus | 26 | —— Scarlet | 10 |
| Cholic | 6 | —— Typhus | 227 |
| Compression of the Brain | 3 | Flux, Infantile | 151 |
| Consumption | 843 | Fracture | 7 |
| Convulsions | 293 | Frozen | 3 |
| Contusion | 4 | Gout | 2 |
| Cramp in the Stomach | 9 | Gravel | 3 |
| Diabetes | 1 | Hæmorrhage | 16 |
| Diarrhœa | 61 | Hæmoptysis | 9 |
| Drinking cold water | 77 | Herpes | 2 |
| Dropsy | 110 | Hives, or Croup | 133 |
| —— in the Chest | 37 | Hysteria | 1 |
| —— in the Head | 196 | Jaundice | 15 |
| Drowned | 56 | Infanticide | 3 |
| *Carried over,* | 2033 | *Carried over,* | 2988 |

| | | | |
|---|---|---|---|
| *Brought over,* | 2988 | *Brought over,* | 4143 |
| Inflammation of the Bladder | 3 | Rheumatism | 14 |
| —— Bowels | 104 | Rickets | 1 |
| —— Brain | 107 | Rupture | 3 |
| —— Chest | 203 | St. Anthony's Fire | 4 |
| —— Liver | 56 | Scirrhus of the Liver | 1 |
| —— Stomach | 13 | Scrofula, or King's Evil | 14 |
| Influenza | 32 | Scurvy | 1 |
| Insanity | 26 | Small Pox | 40 |
| Intemperance | 84 | Sore Throat | 33 |
| Killed, or Murdered | 3 | Spasms | 3 |
| Leprosy | 1 | Spina Bifida | 1 |
| Locked Jaw | 14 | Sprue, or Aphthæ | 18 |
| Lumbar Abscess | 2 | Still Born | 244 |
| Manslaughter | 1 | Sudden Death | 49 |
| Marasmus | 58 | Suicide | 14 |
| Measles | 53 | Syphilis | 15 |
| Mortification | 21 | Tabes Mesenterica | 143 |
| Nervous Disease | 9 | Teething | 61 |
| Old Age | 203 | Vomiting of Blood | 1 |
| Palsy | 62 | Ulcers | 6 |
| Peripneumony | 43 | Unknown | 111 |
| Pleurisy | 42 | White Swelling | 5 |
| Pneumonia Typhoides | 7 | Whooping Cough | 69 |
| Quinsy | 8 | Worms | 24 |
| *Carried over,* | 4143 | Total, | 5018 |

*Of the above mentioned Deaths, there were,*

| | | |
|---|---|---|
| Men, | 1721 | |
| Boys, | 1156 | |
| *Total Males,* | | 2877 |
| Women, | 1180 | |
| Girls, | 961 | |
| *Total Females,* | | 2141 |
| Total, | | 5018 |

GEORGE CUMING, City Inspector.

## STATEMENT OF DEATHS IN THE CITY AND LIBERTIES OF PHILADELPHIA,

*For the Year* 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

| Deaths in each month. | Adults. | Children. | Total. |
|---|---|---|---|
| January, | 145 | 144 | 289 |
| February, | 147 | 86 | 233 |
| March, | 216 | 147 | 363 |
| April, | 140 | 91 | 231 |
| May, | 139 | 128 | 267 |
| June, | 156 | 203 | 359 |
| July, | 254 | 296 | 550 |
| August, | 182 | 192 | 374 |
| September, | 163 | 152 | 315 |
| October, | 126 | 123 | 249 |
| November, | 160 | 124 | 284 |
| December, | 156 | 142 | 298 |
| Totals, | 1984 | 1828 | 3812 |

| Ages. | |
|---|---|
| Under 1 Year, | 1109 |
| From 1 to 2 | 250 |
| 2 to 5 | 232 |
| 5 to 10 | 128 |
| 10 to 15 | 58 |
| 15 to 20 | 82 |
| 20 to 30 | 432 |
| 30 to 40 | 479 |
| 40 to 50 | 373 |
| 50 to 60 | 263 |
| 60 to 70 | 171 |
| 70 to 80 | 122 |
| 80 to 90 | 85 |
| 90 to 100 | 24 |
| 100 to 110 | 4 |
| Total, | 3812 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Atrophy | 29 | *Brought over,* | 1296 |
| Abscess | 12 | Debility | 260 |
| Apoplexy | 61 | Diarrhœa | 66 |
| Asthma | 21 | Dysentery | 87 |
| Angina Pectoris | 5 | Drunkenness | 31 |
| Aneurism | 2 | Drinking cold water | 25 |
| Anthrax | 1 | Drowned | 34 |
| Aphthæ | 5 | Dyspepsia | 7 |
| Burns | 20 | Disease of the Heart | 5 |
| Bronchitis | 14 | Dropsy | 90 |
| Consumption | 519 | —— in the Head | 140 |
| Convulsions | 237 | —— of the Breast | 40 |
| Casualties | 19 | Epilepsy | 13 |
| Catarrh | 71 | Erysipelas | 12 |
| Cholera | 209 | Eruptions | 5 |
| Cancer | 12 | Extreme Heat | 7 |
| Colic | 7 | Fever | 91 |
| Colica Pictonum | 4 | —— Bilious | 62 |
| Caries | 2 | —— Bilious Remittent | 10 |
| Cynanche Maligna | 2 | —— Bilious Intermittent | 2 |
| Childbed | 4 | —— Malignant Bilious Remittent | 1 |
| Concussion | 2 | —— Typhus | 81 |
| Contusion | 4 | —— Inflammatory | 7 |
| Coup de Soleil | 4 | —— Intermittent | 13 |
| Decay | 30 | | |
| *Carried over,* | 1296 | *Carried over,* | 2385 |

| | | | |
|---|---|---|---|
| *Brought over,* | 2385 | *Brought over,* | 3054 |
| Fever Remittent | 75 | Measles | 38 |
| —— Nervous | 10 | Mania a Potu | 64 |
| —— Hectic | 4 | Murdered | 1 |
| —— Scarlet | 9 | Mortification | 19 |
| —— Puerperal | 10 | Obesity | 1 |
| Fracture | 5 | Old Age | 60 |
| Found Dead | 15 | Polypus | 1 |
| Gout | 3 | Poisoned | 1 |
| Gangrene | 3 | Perished for Want | 1 |
| Gun-shot Wound | 1 | Prolapsus | 1 |
| Hives | 75 | Palsy | 42 |
| Hooping Cough | 40 | Pleurisy | 8 |
| Hysteritis | 1 | Rheumatism | 5 |
| Hæmorrhage | 34 | Strangury | 2 |
| Influenza | 3 | Small Pox, (natural) | 6 |
| Insanity | 24 | Sore Throat | 21 |
| Inflammation of the Lungs | 124 | Scirrhus | 7 |
| —— Liver | 36 | Stone | 3 |
| —— Breast | 13 | Spasms | 11 |
| —— Brain | 64 | Scrofula | 15 |
| —— Bowels | 56 | Spina Bifida | 4 |
| —— Bladder | 5 | Sudden | 72 |
| —— Peritoneum | 9 | Still Born | 273 |
| —— Kidneys | 3 | Suicide | 9 |
| —— Knee Joint | 1 | Thrush | 1 |
| —— Stomach | 16 | Tumours | 3 |
| —— Spleen | 2 | Teething | 15 |
| —— Uterus | 1 | Ulcers | 5 |
| Jaundice | 10 | Worms | 10 |
| Locked Jaw | 11 | Wounds | 1 |
| Laudanum to excess | 6 | Unknown | 58 |
| *Carried over,* | 3054 | Total, | 3812 |

*Of the above mentioned Deaths, there were,*

| | | |
|---|---|---|
| Males of 20 years and upwards | 1119 | |
| Ditto, under 20 years | 932 | |
| | | 2051 |
| Females of 20 years and upwards | 855 | |
| Ditto, under 20 years | 830 | |
| | | 1685 |
| Children principally under one year, whose sex is unknown | 76 | |
| Total, | | 3812 |

Of the foregoing Deaths, 346 died in the Alms-House, and 495 were People of Colour.

Agreeably to the Returns received at the Health Office from *one hundred and twenty-nine* Practitioners of Midwifery, there were born, in the City

and Liberties of Philadelphia, from the first of January, to the thirty-first of December, 1825, both days inclusive,

Male Children.....3444
Female Ditto.....3182

Making the Total Number of BIRTHS.....6626
The whole Number of DEATHS was.....3812

Difference between the *Births* and *Deaths*.....2814

*By order of the Board of Health,*

JOSEPH PRYOR, *Clerk.*

---

## STATEMENT OF DEATHS IN THE CITY OF BALTIMORE,

*For the Year* 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

| Deaths in each month. | Males. | Females. | Total. |
|---|---|---|---|
| January, | 83 | 59 | 142 |
| February, | 60 | 42 | 102 |
| March, | 64 | 54 | 118 |
| April, | 40 | 34 | 74 |
| May, | 56 | 72 | 128 |
| June, | 71 | 49 | 120 |
| July, | 122 | 67 | 189 |
| August, | 123 | 84 | 207 |
| September, | 57 | 57 | 114 |
| October, | 63 | 73 | 136 |
| November, | 54 | 61 | 115 |
| December, | 61 | 39 | 100 |
| Totals, | 854 | 691 | 1545 |

| Ages. | |
|---|---|
| Under 1 Year, | 408 |
| From 1 to 2 | 114 |
| 2 to 5 | 103 |
| 5 to 10 | 54 |
| 10 to 21 | 94 |
| 21 to 30 | 170 |
| 30 to 40 | 190 |
| 40 to 50 | 139 |
| 50 to 60 | 101 |
| 60 to 70 | 80 |
| 70 to 80 | 58 |
| 80 to 90 | 23 |
| 90 to 100 | 9 |
| 100 to 110 | 2 |
| Total, | 1545 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Apoplexy, | 17 | *Brought over,* | 563 |
| Aphthæ, | 1 | Dropsy, | 44 |
| Asthma, | 3 | ——in the Head, | 24 |
| Burns, | 9 | Drinking cold water, | 5 |
| Cancer, | 3 | Drowned, | 26 |
| Casualties, | 12 | Dysentery, | 30 |
| Childbed, | 22 | Dyspepsia, | 1 |
| Colic, | 3 | Enteritis, | 1 |
| ——Cramp, | 12 | Fever, Bilious, | 79 |
| ——Bilious, | 2 | —— Inflammatory, | 5 |
| Cholera Infantum, | 93 | —— Intermittent, | 1 |
| Cholera Morbus, | 7 | —— Scarlet, | 3 |
| Consumption, | 295 | —— Typhus, | 50 |
| Convulsions, | 47 | From Lightning, | 1 |
| Croup, or Hives, | 37 | Gout in the Stomach, | 1 |
| Diarrhœa, | 2 | Gravel, | 1 |
| *Carried over,* | 563 | *Carried over,* | 837 |

| | | | |
|---|---|---|---|
| *Brought over,* | 837 | *Brought over,* | 1056 |
| Hæmorrhage, | 3 | Pleurisy, | 25 |
| Inflammation, | 3 | —— Bilious, | 2 |
| —— Brain, | 10 | —— Typhoid, | 1 |
| —— Liver, | 6 | Pneumonia, | 16 |
| —— Lungs, | 2 | Quinsy, | 7 |
| —— Stomach, | 2 | Rheumatism, | 2 |
| —— Throat, | 1 | Scald, | 1 |
| Infanticide, | 1 | Scirrhus of the Liver, | 3 |
| Intemperance, | 21 | Scrofula, | 5 |
| Jaundice, | 2 | Still Born, | 92 |
| Liver Complaint, | 25 | Strangulated Hernia, | 1 |
| Locked Jaw, | 3 | Small Pox, | 3 |
| Mania, | 3 | Sudden, | 30 |
| Manslaughter, | 2 | Suffocation, | 1 |
| Marasmus, | 35 | Suicide, | 7 |
| Measles, | 9 | Teething, | 14 |
| Mortification, | 6 | Thrush, | 7 |
| Murdered, | 1 | Tumour, | 1 |
| Old Age, | 69 | Unknown Adults, | 34 |
| Organic disease of the Heart, | 2 | —— Infantile, | 216 |
| Palsy, | 11 | Whooping Cough, | 13 |
| Phrenitis, | 1 | Worms, | 8 |
| Piles, | 1 | | |
| | —— | Total, | 1545 |
| *Carried over,* | 1056 | | |

Of the Deaths above enumerated, 389 were people of colour—of whom 332 were Free, and 57 Slaves.

The coloured population of this city, in 1820, according to the United States' Census, was 10,294 Free, and 4,357 Slaves.

*By order of the Board of Health,*

DANIEL HARRIS, Secretary.

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## STATEMENT OF DEATHS IN THE CITY OF CHARLESTON,

(South Carolina,)

*For the Year* 1825;

SPECIFYING THE SEXES, AGES, AND DISEASES.

| Deaths in each month. | Males. | Females. | Total. | Ages. | |
|---|---|---|---|---|---|
| January, | 29 | 21 | 50 | Under 3 years, | 219 |
| February, | 31 | 22 | 53 | From 3 to 10 | 52 |
| March, | 25 | 22 | 47 | 10 to 20 | 47 |
| April, | 29 | 26 | 55 | 20 to 30 | 117 |
| May, | 38 | 22 | 60 | 30 to 40 | 127 |
| June, | 63 | 32 | 95 | 40 to 50 | 85 |
| July, | 43 | 32 | 75 | 50 to 60 | 56 |
| August, | 70 | 34 | 104 | 60 to 70 | 68 |
| September, | 75 | 37 | 112 | 70 to 80 | 37 |
| October, | 62 | 27 | 89 | 80 to 90 | 19 |
| November, | 33 | 24 | 57 | 90 to 100 | 7 |
| December, | 28 | 15 | 43 | 100 to 110 | 6 |
| Totals, | 526 | 314 | 840 | Total, | 840 |

*The above mentioned Deaths were caused by the following Diseases and Casualties, viz:*

| | | | |
|---|---|---|---|
| Accident, | 14 | *Brought over,* | 610 |
| Angina Pectoris, | 1 | Hæmorrhoids, | 1 |
| Apoplexy, | 9 | Inflammation of the Brain, | 5 |
| Asthma, | 7 | —— Bowels, | 3 |
| Cancer, | 5 | Insanity, | 7 |
| Catarrh, | 14 | Intemperance, | 17 |
| Childbed, | 9 | Jaundice, | 3 |
| Colic, | 4 | Liver Complaint, | 13 |
| Cholera Morbus, | 3 | Locked Jaw, | 6 |
| Consumption, | 152 | Mænorrhagia, | 1 |
| Convulsions, | 48 | Old Age, | 59 |
| Cramp, | 4 | Palsy, | 6 |
| Croup, | 16 | Peripneumony, | 1 |
| Debility, | 34 | Pleurisy, | 5 |
| Diarrhœa, | 79 | Rheumatism, | 1 |
| Dropsy, | 87 | Scrofula, | 3 |
| Drowned, | 5 | Small Pox, | 49 |
| Dysentery, | 6 | Sore Throat, | 3 |
| Dyspepsia, | 3 | Spasms, | 11 |
| Epilepsy, | 1 | Strangulated Hernia, | 3 |
| Fever, | 6 | Sudden Death, | 4 |
| —— Bilious, | 21 | Suffocation, | 2 |
| —— Catarrhal, | 6 | Suicide, | 2 |
| —— Country, | 28 | Sun Struck, | 2 |
| —— Intermittent, | 6 | Swine Pox, | 1 |
| —— Nervous, | 15 | Teething, | 13 |
| —— Worm, | 14 | Thrush, | 5 |
| Gout, | 1 | Varioloid, | 3 |
| Hooping Cough, | 5 | Violence, | 1 |
| Hæmoptoe, | 1 | | |
| Hæmorrhage, | 6 | Total, | 840 |
| *Carried over,* | 610 | | |

*Of the above mentioned Deaths, there were,*

| | | |
|---|---|---|
| White Males, | 228 | |
| Do. Females, | 125 | |
| Total Whites, | | 353 |
| Black Males, | 253 | |
| Do. Females, | 234 | |
| Total Blacks, | | 487 |
| Total Deaths, | | 840 |

Of the Whites, there were,

| | |
|---|---|
| Natives of this State, | 188 |
| Different parts of the United States, | 74 |
| Foreigners, | 91 |
| Total, | 353 |

*By order of the Board of Health,*
JAMES A. MILLER, Clerk.

## REMARKS BY THE EDITORS.

| | |
|---|---|
| In 1820, the population of Boston was | 43,940 |
| of Salem, | 11,346 |
| of the city and county of New-York, | 123,706 |
| of the city and liberties of Philadelphia, | 119.325 |
| of Baltimore, | 62,738 |
| of Charleston, | 24,780 |

By a census, taken of the city and county of New-York, by state authority, in 1825, the population was 166,086. Assuming that the other cities, whose bills of mortality are given, have increased in the same ratio; their population in round numbers, for 1825, would be

| | |
|---|---|
| Boston, | 58,000* |
| Salem, | 14,000 |
| Philadelphia and Liberties, | 159,000 |
| Baltimore, | 84,000 |
| Charleston, | 33,000 |

*Proportion of Deaths to the whole population in the above mentioned cities for* 1825, *assuming the above numbers.*

| | |
|---|---|
| Boston, | 1 in 40 |
| Salem, | 1 in 50 |
| New-York, | 1 in 33 |
| Philadelphia, | 1 in 41.7 |
| Baltimore, | 1 in 54.3 |
| Charleston, | 1 in 39.2 |

*Proportion of Deaths by Fevers and Consumption, respectively, to the whole population.*

| | Deaths by Fevers. | Deaths by Consumption. |
|---|---|---|
| Boston, | 1 in 853 | 1 in 263 |
| Salem, | 1 in 1400 | 1 in 229 |
| New-York, | 1 in 373 | 1 in 197 |
| Philadelphia, | 1 in 424 | 1 in 306 |
| Baltimore, | 1 in 626 | 1 in 284 |
| Charleston, | 1 in 343 | 1 in 217 |

*Proportion of Deaths by Fevers, Consumption, and Cholera Infantum, to the whole number of deaths.*

| | Fevers. | Consumption. | Cholera Infantum. |
|---|---|---|---|
| Boston, | 1 in 21.3 | 1 in 6.6 | 1 in 111 |
| Salem, | 1 in 28 | 1 in 4.6 | 1 in 140 |
| New York, | 1 in 11.3 | 1 in 6 | 1 in 33.2 |
| Philadelphia, | 1 in 10.2 | 1 in 7.3 | 1 in 18.2 |
| Baltimore, | 1 in 11.5 | 1 in 5.2 | 1 in 16.6 |
| Charleston, | 1 in 8.5 | 1 in 5.5 | ———† |

*Since the above was in type, we have ascertained that the exact population of Boston, by a recent census, is 58,277.

† No deaths by Cholera Infantum, reported.

*Proportion of Deaths, occurring under the age of 2 years, to the whole mortality.*

| | |
|---|---|
| Boston, | 1 in 2.9 |
| Salem, | 1 in 4 |
| New York, | 1 in 3.3 |
| Philadelphia, | 1 in 2.8 |
| Baltimore, | 1 in 3 |
| Charleston, | 1 in 3.8* |

* An accurate comparison cannot be instituted between Charleston and the other cities, as the bill of mortality for that city only distinguishes children under *three* years of age.

## QUARTERLY NOTICE

OF

## NEW MEDICAL PUBLICATIONS.

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Anatomy taught by Analysis. A Lecture introductory to the course, delivered in the Philadelphia Anatomical Rooms, fifth session, 1825–6. By John D. Godman, M. D. Lecturer on Anatomy and Surgery. Philadelphia, 1826.

Report of the Trial of an Action, Charles Lowell against John Faxon and Micajah Hawks, Doctors of Medicine, Defendants, for malpractice in the capacity of Physicians and Surgeons, at the Supreme Judicial Court of Maine, holden at Machias, for the county of Washington, June Term, 1824, before the Hon. Nathan Weston, Jun. Justice of the Court. Portland, James Adams, Jr. 1825.

This altogether is a very interesting report, and we contemplate, at a future period, presenting an analysis of its contents. At present, it is sufficient to state "that the plaintiff suffered a nonsuit, and the defendants agreed to take no cost."

An Inaugural Address delivered before the Medical Society of the State of New York, at the capitol in the city of Albany, on the 8th day of February, 1826. By James R. Manley, M. D. President of the Society. New York, printed by J. Seymour.

Introductory Lecture, delivered at the commencement of the second session of the Medical College of South Carolina. By Samuel Henry Dickson, M. D. Professor of the Institutes and Practice of Medicine. Charleston, 1826, pp. 28.

This lecture possesses no small portion of merit. The author has taken up the subject of medical education, and treated it in a manner, which proves that he has thought not only much but justly respecting it. His views are presented in an ornate, and, at the same time, neat and perspicuous manner, and deserve a wide circulation; especially as the subject of medical education is now exciting general attention in our country.

The Medical Recorder of original papers and intelligence in Medicine and Surgery. Conducted by Samuel Calhoun, M. D. No. 33. January, 1826.

The New York Medical and Physical Journal. Edited by John B. Beck, M. D., Daniel L. M. Peixotto, M. D. and John Bell, M. D. No. 16. January, 1826.

The Philadelphia Journal of the Medical and Physical Sciences, edited by N. Chapman, M. D., Wm. P. Dewees, M. D. and John D. Godman, M. D. No. 22. February, 1826.

The New England Journal of Medicine and Surgery, and the collateral branches of science. Conducted by Walter Chauncey, Jun. M. D. and John Ware, M. D. No. 1. Vol. XV. January, 1826.

The American Medical Review and Journal of original and selected papers in Medicine and Surgery. Conducted by John Eberle, M. D., Nathan Smith, M. D., George M'Clellan, M. D. and Nathan R. Smith, M. D. Vol. II. No. 2.

The characteristic of Homoöpathia, (From Hahnemann's "Geist Der Homoöpathischen heil-lehre.") By H. B. Gram, C. M. L. New York, 1825.

Whatever success the author of this doctrine and his followers may have met with in preventing scarlatina by means of the Belladonna, we are not prepared to allow him much credit for all his views, and especially for the *undue extension* he has given to his theories. The subject, however, might have been interesting to the physicians of this country, had Mr. GRAM made himself sufficiently master of the English language to convey his ideas, or rather those of Dr. HAHNEMANN, in an intelligible manner.

Professional Reputation. An Oration delivered before the Philadelphia Medical Society, pursuant to appointment, February 8, 1826. By John D. Godman, M. D.

A catalogue of the Officers and Students of Transylvania University, Lexington, Kentucky. January, 1826.

By the above pamphlet, for which we are indebted to the politeness of our learned friend Professor DRAKE, we are happy to discover that the medical school of Lexington is in a most prosperous condition, and bids fair to rival in success, the oldest colleges in the union. By official returns contained in the pamphlet before us, we find that the number of pupils attending lectures this winter amounted to 282, being 35 more than during the preceding session. When we bear in mind, that the school was instituted in 1818, that the first course of lectures was delivered in it in 1819 to a class of twenty-six, we cannot help rejoicing at its rapid growth. We heartily wish it success. The chair of the theory and practice of medicine, vacated by the resignation of Doctor S. BROWN, is now filled by Dr. DRAKE, whose former branch is now taught by Dr. CHARLES WILKINS SHORT.

A Synopsis of the Diseases of the Eye and their Treatment; to which are prefixed a short anatomical description, and a sketch of the Physiology of that organ. By Benjamin Travers, F. R. S. Surgeon to St. Thomas' Hospital. With notes and additions by Edward Delafield, M. D. Surgeon to the New York Eye Infirmary and Lecturer on Diseases of the Eye. First American from the Third London Edition. New York, Bliss & White, and Carey & Lea, Philadelphia.

Mr. TRAVERS' work on the diseases of the eye has hitherto been known to only a few physicians in this country, and by them it has invariably been regarded as possessing great merit. We are therefore extremely happy to find, that an American edition of it has been published in New York, with notes and additions by Dr. DELAFIELD, of that city; a gentleman who has already acquired a merited reputation, as a practical oculist. The plates are extremely well executed, and in point of typography and paper, the American publisher seems to have spared no pains or expense to render the work worthy of extended patronage.

**The Study of Medicine, by John Mason Good, M. D., F. R. S., F. R. S. I. &c. &c. &c. In Five Volumes. Fourth American Edition, reprinted from the last London Edition, greatly improved and enlarged. Boston; Wells & Lilly. 1826.**

Dr. Good must undoubtedly be much gratified at the great success the work has met with in this country, especially when he takes into consideration the number and the large size of the volumes. In the present edition, the work has been enlarged by the addition of a whole volume, by which means the very erudite author has been enabled to introduce many interesting subjects, hitherto unavoidably omitted, and to avail himself more largely of the experience of continental physicians.

Much credit is due to the American publishers, for the excellent manner in which this edition is got up. Despising, as we do, the practice so common in this country, of publishing *cheap* copies of Medical works, printed with small, compressed types, and on the worst paper, we must hail with pleasure the appearance of a publication possessing a very different character. In the edition before us, the marginal notes so necessary in a work of the sort, and which, for the sake of *economy*, had been left out in all the former editions printed in this country, have been retained. This alone is sufficient to ensure this edition a more extensive circulation.

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## NOTICE TO CORRESPONDENTS.

The interesting account of the Epidemic of 1825, at Natchez, Mississippi, has been received.

The papers on the Varioloid Epidemic of this city, in 1824, and on a peculiar Gangrenous Sore Mouth in children, were not in readiness for the present number: A handsome coloured engraving of the varioloid eruption on the skin and on mucous surfaces, already prepared for the former paper, is therefore unavoidably postponed.

Authors desirous of their publications being noticed in this work, are requested to forward them, free of all expense, to the Agent.

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